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TRANSACTIONS

OF THE

Kentucky State Medical Society

FORTY-FIFTH ANNUAL SESSION

HELD AT

GEORGETOWN, MAY 9, 10, AND 11, 1900.

NEW SERIES. VOLUME VIII.

PRINTED FOR THE SOCIETY,
1900.

NOTE.

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Places of Meeting: 1884, Bowling Green; 1885, Crab Orchard Springs; 1886, Winchester; 1887, Paducah; 1888, Crab Orchard Springs; 1889, Richmond; 1890, Henderson; 1891, Lexington; 1892, Louisville; 1893, Frankfort; 1894, Shelbyville; 1895, Harrodsburg; 1896, Lebanon; 1897, Owensboro; 1898, Maysville; 1899, Louisville; 1900, Georgetown.

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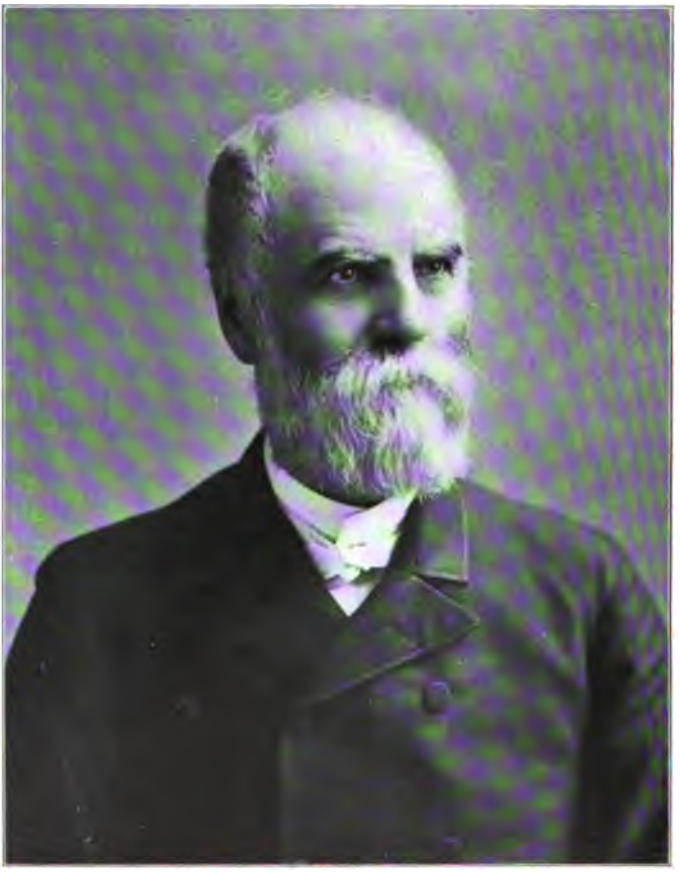

WILLIAM BAILEY, A. M., M. D.

thousand times. no."

I. PRESIDENT'S ADDRESS.

WILLIAM BAILEY, A. M., M. D.,
LOUISVILLE, KY.

Members of the Kentucky State Medical Society, Ladies, and Gentlemen: I am happy in being permitted to address you on this auspicious occasion, especially since we meet in this city of Georgetown, county of Scott.

It was here that lived and died that worthy man whom we all delight to honor, and who may be truly styled the founder and father of this Society. Here rest his remains until all shall be summoned to give an account for the deeds while in the body. This man labored earnestly and constantly for the benefit and uplift of humanity. Let us, while visiting the place of his activities while in life and the resting-place of his body, drink deeply of his spirit and take with us to our homes the same spirit for work for the good of man. All honor to the memory of our first president, Dr. William Loftus Sutton.

Again, I am happy to address you at this annual convention, because this is the closing year of the nineteenth century.

Our honored ex-President Harrison, recently addressing the Ecumenical Conference on Foreign Missions, usesd these words: "The gigantic engines that are driving forward a material development are being speeded as never before.

"The direction of the hammer and the axe and the hum of wheels have penetrated the abodes of solitude, so that the world has few quiet places. Life is strenuous—the boy is started in his school upon the run, and the pace not often slackened until the panting man falls into his grave. It is to a generation thus intent to a generation that has wrought wondrously in the realms of applied science that God in His word and by the preacher says, 'All these are worthy only and in proportion as they contribute to the regeneration of mankind.' Every invention, every work, every man, every nation must one day come to the weighing platform and be appraised. To what other end is all this stir among men—this increase of knowledge? That these great agencies may be put in livery and lined up in the halls of wealth to make life brilliant and soft or become the docile messengers of a counting-house or a stock exchange, or the swift couriers of contending armies, or the couriers who wait in the halls of science to give glory to the man into whose hands God has given the keys to one of his mysteries. Do all these great inventions, these rushing intellectual developments exhaust their ministry in the making of men rich and the reinforcing of armies and fleets? No, a thousand times. no."

After calling your attention to some of the wonderful discoveries of the closing century compared with the preceding one, and indeed I may say in order to make the contrast the more striking with all preceding ones, I will ask your attention more particularly to those that concern the medical world. I find the achievements of the century brought together for ready use in the book published recently by Alfred Russell Wallace, styled "The Wonderful Century."

He cites first those inventions and practical applications of science which are perfectly new departures, and which have also so rapidly developed as to have profoundly affected many of our habits and even our thoughts and our language, thirteen in number:

1. Railways, which have revolutionized land travel and the distribution of commodities.

2. Steam navigation, which has done the same thing for ocean travel, and has, besides, led to the entire reconstruction of the navies of the world.

3. Electric telegraphs, which have produced an even greater revolution in the communication of thought.

4. The telephone, which reproduces the voice of the speaker at a distance.

5. Friction matches, which have revolutionized the modes of obtaining fire.

6. Gas lighting, which enormously improved outdoor and other illumination.

7. Electric lighting, which threatens to supersede gas.

8. Photography, an art which is to the external forms of nature what printing is to thought.

9. Phonograph, which preserves and reproduces sounds, as photography preserves and reproduces forms.

10. The Roentgen rays, which render many hitherto opaque objects transparent.

11. Spectrum analysis, which has so greatly extended our knowledge of the universe.

12. The use of anesthetics, which renders surgery painless.

13. The use of antiseptics.

Scarcely any invention comparable with these can be found in the history of the eighteenth century. In the seventeenth century we find the discovery of the telescope, which, along with spectrum analysis, has done so much to increase our knowledge of the material universe. The barometer and thermometer are discoveries of minor importance as compared with those mentioned. Nothing in the sixteenth century, but in the fifteenth century printing was discovered. The mariner's compass in the fourteenth century, which has done so much for navigation. Besides these back even to prehistoric ages nothing appears in this list of great discoveries, except the Indian or Arabic numerals leading to arithmetic and algebra and alphabetical writing.

All preceding ages show about seven as compared with thirteen in the nineteenth century alone. He presents us about an equal number (thirteen) of theoretical discoveries of this century, and about seven in all preceding ages worthy of note. I will only take up sufficient time now to enumerate them:

14. Conservation of energy.
15. Molecular theory of gases.
16. Velocity of light directly measured.
17. Uses of dust.
18. Chemistry, definite proportions.
19. Meteors and the meteoretic theory.
20. The glacial epoch.
    The antiquity of man.
22. Evolution.
23. Cell theory and embryology.
24. Germ theory of disease and the function of the leucocytes.

Of all preceding ages:

8. Modern chemistry founded.
9. Electric science founded.
10. Gravitation established.
11. Kepler's laws.
12. The differential calculus.
13. Circulation of the blood.
14. Light proved to have finite velocity.
15. Development of geometry.

In 1798 Jenner published his observations that cowpox gave immunity against smallpox, but vaccination gained but little headway until the present century. Before the close of the first decade our very own Dr. Ephraim McDowell gave to the world ovariotomy, which has forever made immortal, not only his own name, but likewise that of Mrs. Crawford, his first subject. Since that day and as its result it has been given to single surgeons by this operation the privilege of extending the lives of women more than twenty thousand years. To-day it is recognized as a legitimate operation, and is being practiced by thousands of surgeons over the entire civilized world.

In the forties anesthetics were introduced, the use of which has revolutionized surgery. Imagine the untold suffering which should be endured in the surgery of to-day if the boon of unconsciousness could not be safely produced. It has made the surgery of to-day possible. Mortality as well, in my opinion, has been diminished by the lessening or loss of the reflexes, thereby removing the danger of the shock of the operation. I think that more lives have been saved by the relief from shock of operation than deaths have occurred by even the careless administration of the drugs. I make this statement because I am constrained to believe that nearly all the deaths that have occurred from anesthesia have beeen due to faulty administration.

Possibly the greatest achievement for the benefit of the race in the century was the establishment of the germ-theory of disease. The work of Pasteur can never be sufficiently honored, and the science of bacteriology has made possible the saving of untold millions of lives that must have necessarily been lost unless knowledge had come to the profession by its means. Soon after this theory was promulgated, Lister made practical application of it in surgery, and antisepsis became an established fact. Better than this, the science soon demonstrated that the exclusion of the germ was better than its destruction, so we to-day regard asepsis as the ideal method in the dressing of wounds. Bacteriology has been the chief step by which the surgeon has been able to make the great progress that characterizes the surgery of to-day.

In the very nature of things, the application of the truths taught by bacteriology were more easily applied in surgery than in general or systematic medicine, and hence surgery seems to have far outstripped other departments. Bacteriology has been busy in the study of the various disease-producing germs that have already been demonstrated, as well as in searching for others which analogy makes highly probable. Many of them are well known to-day, being easily recognized by their morphology, as seen when developed by suitable staining, or by their various appearances when developed in or upon various culture media.

The history of many of them is established, that the evil they do is accomplished by a toxin they produce as their physiological product. Some of these toxins have been isolated, and their physiological influence is as well understood as the alkaloids of many drugs that we daily use.

Scarcely of less importance is the fact in physiology that the influence of these toxins is to stimulate cell activity in the animal economy, and thereby develop in the serum of the blood an antidote to the toxin; and hence we have serum-therapy, or the use of antitoxins. The most familiar, and so far the most certain one, is the antitoxin of diphtheria. You are familiar with the production of this antitoxin. The toxin is injected into the horse in increasing doses until many times the dose that would have killed the animal at the beginning is received without reaction, and it is then found that there has been developed in the serum of the blood of the animal a true antitoxin, a true antidote for the poison produced by the Klebs-Loeffler bacillus, the germ without which true diphtheria does not exist.

No more wonderful thing is done in surgery to-day than the certain cure of diphtheria by the use of its antitoxin. This illustration is only one of many that might be cited to show the wonderful efficacy of serum-therapy.

If time permitted I should be pleased to elaborate this subject more fully and plead that this remedy should be promptly used before the dangers of mixed infection occur, for the reason that it is not antidotal to other toxins that are produced by mixed infection. We are as yet only upon the threshold of knowledge in regard to this method of treatment. I am hopeful that

many of you will live to see the day when many, if not all, of the infectious diseases will be successfully treated by this method, and that many of the epidemic diseases which have hitherto walked and laid waste in darkness will be under the control of man.

Scarcely of less importance is the progress made in physiology in regard to the function of the so-called ductless glands and the white corpuscles of the blood. Following in the wake of this knowledge has come the introduction of the various animal extracts in the treatment of many diseased conditions which have heretofore been beyond our relief. These are only a few of the many things accomplished in this century.

I have not even made mention of the instruments and methods by which diagnosis has been more easy and exact. Imagine how feebly prepared a physician must have been one hundred years ago! Practically no physical diagnosis, no clinical thermometer, no hypodermatic syringe, no diagnosis or differentiation of the diseases of the kidneys by chemical or microscopical examination of the urine. To-day it would be as difficult to find a physician without a thermometer and hypodermatic syringe in his pocket as it is said to be to find a Kentuckian without a pistol or a corkscrew.

Ian Maclaren, in "Beside the Bonnie Brier Bush," has made famous one of his characters, and it by some has been thought to be overdrawn; but I tell you nay, for all over this broad land of ours are to be found Weelum MacLures by the hundreds, if not by the thousands.

I wish I could tell you to-night my estimate of the character and worth of the members of the profession to which so many of us belong. No nobler or more self-sacrificing body of men live upon the earth to-day than the doctors. God grant that each of us, when we come to lay our burdens down, may find a Drumsheugh who will pray, "Almighty God, . . . dinna be hard on Weelum MacLure, for he's no been hard wi' onybody in Drumtochty. . . . Be kind tae him as he's been tae us a' for forty year. . . . We're a' sinners afore Thee. Forgive him what he's dune wrang, an' dinna cuist it up tae him. Mind the fouk he's helpit, the weemen an' bairnies, . . . an' gie him a welcome hame, for he's sair needin't after a' he's wark. Amen."

It matters little whether any new discovery is made in medicine for years to come, for we have an abundance of work to do in perfecting what has been undertaken but not completed. Bacteriology, including animal experimentation, must be our chief reliance in much of this work. Without animal experimentation it will be impossible to pursue this work, so well begun. It may seem strange to you, yet there is a large and well-organized body of people who are opposed to this practice on account of alleged cruelty to animals. They hesitate not to slay animals for their own personal use as food and adornment. They deny us the privilege of using the lower animals to obtain knowledge to cure the diseases of man, not only in this present age, but for all time to come.

There is pending in the Senate of the United States to-day a bill which, if enacted into a law, will practically prevent further development in this line of work. Many women, in the kindness of their hearts—God bless them—are zealous in waging this warfare, and yet they or their sisters adorn themselves with the plumage of birds slain for this purpose alone. Imagine, if you please, a woman after that mysterious but successful search after the gay and festive flea deliberately turning it loose on account of cruelty to animals! She will kill a thousand fleas to give one night's rest to her poodle dog. Or if she has been so unfortunate in her association as to catch the itch, to carefully preserve the life of the "acarus scabei." Cruel doctor, to give her relief from the itch by giving the deadly dose of sulphur to the bug! "Consistency, thou art a jewel!"

However, I come to you with no pessimistic views, for I am and have always been very hopeful as to the future. The march is forward and irresistible, and I congratulate those of you who will yet be young at the dawn of the incoming century. The last half of this century has astounded the world, and yet I suspect many things still more marvelous will be developed within the lifetime of many here to-night. I would ask you to remember that increased opportunity brings with it increased responsibility; remember "we shall pass through this world but once. If there is any kindness we can show, or any good things we can do to any fellow-being, let us do it now. Let us not defer nor neglect it, for we shall not pass this way again."

II. POPULAR ADDRESS.

THE EPOCH-MAKING DISCOVERIES IN MEDICINE.

H. A. COTTELL, M. D.,
LOUISVILLE, KY.

"And so the word had breath, and wrought
With human hands the creed of creeds,
In loveliness of perfect deeds,
More strong than all poetic thought."

What is the most sacred word? I answer, truth. What is the noblest word? I answer, duty. And truth, potentialized by science, and set to work by duty in the defensive generalship of the hygienist, the life-saving and life-prolonging office of the surgeon, and the man-loving ministrations of the physician, has exalted medicine to the highest seat among the professions, and placed upon her noble form and sacred brow a vesture and a crown whose beauty and luster shall grow fairer and brighter as the ages roll away.

Medicine has been deservedly accorded and easily holds the first place among the learned professions. An eminent jurist not long ago was asked what, in his opinion, was the chief of the professions. "Medicine," said he, unhesitatingly; "medicine. Theology, law, literature and art are each noble in aim and high in attainment; but medicine, founded upon science and universally beneficent in its offices, easily outranks them all."

A distinguished preacher once said: "The more I see of medicine the more delighted I am with its hold upon truth and its beautifully philanthropic work."

The chisel of the statuary, the brush of the painter, and the pen of the novelist and poet have found in the doctor and his work subjects for many of their most moving creations. The poet Crabbe paid tribute to medicine in these significant lines:

"Glorious its aim! To ease the laboring heart,
To war with death, and stop his flying dart,
To trace the source whence the fierce contest grew,
And life's short lease on easier terms renew;
To calm the frenzy of the burning brain,
To heal the tortures of imploring pain;
Or, when more powerful ills all efforts brave,
To soothe the victim no device can save,
And smooth the stormy passage to the grave."

"Glorious its aim" the poet says, and when we note how many of the since brilliant achievements of medicine were at this time only an aim, the lines become prophetic in the truest sense. Crabbe was born in 1753 and died in 1832. He was, therefore, contemporary with John Hunter, Edward Jenner, Priestly, Lavoisier, Laennec and Benj. Rush. Learning, art and politics were at about the climax of that fermentative process which boiled over in the French revolution and ushered in the era of science and catholicity of thought. What followed in political and social reform, in the evolution of mechanics and the development of the resources of the world, we have but to look about us to see. Now medicine has not only kept pace with the grand procession, but she has pushed forward from the equivocal place of a camp-follower to a position of honor in the front rank.

When the lines quoted were written, medicine had not yet shaken off the shackels of medievalism. The black arts were no longer practiced, but the causes of disease were unknown; diagnosis was a guess, and therapeutics a leap in the dark. Anatomy had, indeed, been advanced to a science, but physiology, chemistry and therapeutics were either in embryo or unborn. Ambroise Pare had reformed some of the sickening barbarities of surgery; Harvey had solved two great basic physiological problems, viz: the circulation of the blood and the development of the mammal from the egg; and the Countess of Chinchon had sent the European victims of malaria some Peruvian bark with her compliments. These were big things, and, building upon them, medicine had begun to lay a few stones in the way of a scientific foundation; but operative surgery was unspeakable and unavoidable torture, while the treatment of disease consisted in the exhibition of pukes, purges and blisters, and the drawing of unlimited quantities of blood.

How light emerged from darkness and order came out of chaos our learned President has just told us. Think of it for a moment, ye lovers of your kind! How deeply significant are these words! Let us speak them with thoughtful and reverential deliberation: Vaccination, ovariotomy, anesthesia, hygiene, bacteriology, synthetic chemistry, antisepsis, intubation, antitoxine! They are, like the Muses, nine in number. Never since the pronunciation of the beautitudes have words so big with blessing been spoken to human hearts through human ears. Well might the patriarchs of our profession, the aged physicians here to-night, take up old Simeon's inspired strain and sing *nunc dimittis* with retrospective gratitude and phophetic rapture: "Lord, now lettest thou thy servant depart in peace; according to thy word. For mine eyes have seen; thy salvation, which thou hast prepared; before the face of all people." For if this be not the millennium of medicine, at least the dawn of the promised thousand years of blessing is purpling the dappled east.

Let us look more closely at these blessings. Vaccination was discovered by Edward Jenner in 1776, but was not given to the world and effectively applied to the prevention of smallpox till 1796, when Mr. Clive introduced it

into St. Thomas' Hospital, London. The discovery of the fact that the terrible smallpox could be reduced to a trifling affection by passing it through the body of the cow is an epoch-making stroke of genius and a blessing to humanity which words can never adequately describe. Before the days of vaccination smallpox was more dreaded and more dreadful than the Tartar hordes who laid waste the cities of Europe in medieval times. It depopulated cities; it forced its loathsome, beauty-destroying and death-dispensing presence alike into the hut of the peasant and the palace of the king. A heart-breaking incident in history would not have been written if Jenner had been given to mankind a half century earlier.

Maria Theresa, Empress of Austria (and mother of the ill-fated Maria Antoinette), had a daughter whose name was Josepha. This beautiful princess was about to be married to the King of Naples. "The arrangements had all been made for their approaching nuptials, and she was just on the point of leaving Vienna to ascend the Neapolitan throne, when she received an order from her mother that she must not depart from the empire until she had, in accordance with the established custom, descended into the tomb of her ancestors and offered her parting prayer. [Now, the wife of her brother Joseph had just died of confluent smallpox, and the body had been consigned to the vaults of the royal tomb.] The young princess, in an agony of consternation, received the cruel requisition, yet she dared not disobey her mother. She took her little sister, Maria Antoinette, whom she loved most tenderly, upon her knee, and, weeping bitterly, bade her farewell, saying she was sure she should take the dreadful disease and die. Trembling in every fiber, the unhappy princess descended into the gloomy sepulcher, where the bodies of generations of kings were moldering. She hurried through her short prayer, and in deepest agitation returned to the palace and threw herself in despair upon her bed. Her worst apprehensions were realized. The fatal disease had penetrated her veins. Soon it manifested itself in its utmost virulence. After lingering a few days and nights in dreadful suffering she breathed her last, and her own loathsome remains were consigned to the same silent chamber of the dead."

What a picture! Andromeda chained to the rock and the huge sea monster, lashing the waves into foam, as he rushed on to devour her, appeal not so terribly to the eye and heart. But Andromeda had a deliverer. Perseus came in time; he killed the monster and saved the maid. Would that Jenner, the more than Perseus of all beautiful women who have lived since his time, had come in time to save the fated princess!

When Jenner died, a poet and a philanthropist wrote upon his tomb these beautiful, appropriate lines:

"Upon this grave let beauty drop a tear—
For beauty's truest, dearest friend lies here."

Ovariotomy. With what pride and with what affection should the Kentucky doctor speak the word. McDowell sleeps in the beautiful cemetery of his own loved Danville under a stately monument erected by his admirers and beneficiaries, the physicians and surgeons of his State.

"At eve the beetle boometh
Athwart the thicket lone;
At noon the wild bee hummeth
About the moss'd headstone;
At midnight the moon cometh
And looketh down alone."

As the soft air of balmy May revives the tender green of the turf that covers his sacred dust and wakens the flowers that slumbered with him to fragrance, bloom and beauty; as the sky from out the fleecy clouds that fleck her azure dome drops kindly rain upon it, and pelts it with genial sunbeams; as the birds sing love songs about the headstone; and the spirit of the wind chants requiems and dirges through the trees, let the living women whose lives his benefaction has snatched from death, or rescued from years of torment; and the children, who would not have been but for his daring deed, make pilgrimages to this hallowed shrine and there pour out the tribute of a thankful heart! To have merited this is to have lived to the highest purpose. And this is immortal renown.

"Sleep sweetly, tender heart, in peace;
Sleep, holy spirit, blessed soul,
While the stars burn, the moons increase,
And the great ages onward roll.
Sleep till the end, true soul and sweet,
Nothing comes to thee new or strange.
Sleep full of rest from head to feet,
Lie still, dry dust, secure of change."

Anesthesia. "To heal the tortures of imploring pain!" When the power of opium to relieve pain was made known to European sufferers, some pious patient exclaimed: *Laudate Dominum*—O, Praise the Lord! and the tincture of opium is therefore called laudanum to this day. Sydenham called opium "*Magnum donum Dei*—God's greatest gift."

The life of the illustrious and beloved elder Lunsford P. Yandell went out as these words of gratitude dropped from his lips. His disease was pneumonia, and "he died in the full possession of his faculties." "During Sunday night (wrote his son David), during Sunday night he grew restless and some pain recurred, when he asked for opium. A short while after taking it he

remarked, 'What a wonderful drug it is. It is, indeed, *magnum donum Dei.*' I added, 'De Quincey, you remember, said that opium was the only universal, catholic anodyne.' 'Yes,' he replied, 'but Sydenham said it better—*magnum donum Dei;*' and the words swelled as he uttered them, as the Latin always did on his tongue."

But if opium, with its rigid limitations as a reliever of suffering, called forth such plaudits from the living lips of the great Sydenham and the dying lips of the illustrious Yandell, what tongue but an archangel's could command an eloquence that would fitly praise chloroform, ether, and the other anesthetics?

The narcotic lessens pain and soothes with kind nepenthe the pillow of suffering; but the anesthetic annulls it. It mitigates or makes of no effect the second curse of sinning man, controls convulsions, and renders painless and possible surgical operations which distance even the utopian dreams of the patriarchs of medicine. What a chorus of praise rises daily from the grateful hearts of the multitudinous beneficiaries of this wonderful discovery!

Hygiene. "To war with death and pluck his flying dart." Who made the "blessed seals that close the pestilence;" "the pestilence that walketh in darkness, and the destruction that wasteth at noonday?" Sanitary science.

When Hippocrates, in the beginning of the Poleponnesian war, delivered Athens from a dreadful pestilence, he was publicly rewarded with a golden crown and the privileges of a citizen of Athens. What the father of medicine did on this occasion was probably a general cleaning up of premises, the isolation of patients, and the placing of a cordon of soldiers around the city. These were sound measures, indeed, and entitle him to honor and gratitude.

But the principles laid down by the father of medicine and elaborated by his followers in classic and early Christian times were lost altogether or made of no effect in the dark ages, when Europe was literally given over to religion and dirt. It was then that smallpox, cholera, the bubonic plague, and the East Indian fury, "black death," stalked like destroying fiends, without let or hindrance, in, among and through the defenseless people, ceasing their ravages only when there were no longer any victims left to feed upon.

The deadliest diseases of historic times are the bubonic plague and "black death," which was perhaps the former in more malignant type. There are peasants in Europe to-day who tremble and turn pale at the mention of "black death." They hear the name with a sensation of horror which has come down in them from ancestors who lived in the fourteenth century. For in the visitations of those years of grace "black death" destroyed in Europe alone (25,000,000) twenty-five millions of human beings. The great plague of London in 1664 did not cease its ravages until a hundred thousand had perished, and a visitation of the same disease in Egypt in 1792 carried off 800,000 victims. Yet to-day we pursue our way without fear in knowledge of the fact that the plague has actually landed on our shores; one case having been re-

ported in New York at the quarantine station, and others among the Chinese in San Francisco. Are we in danger? I say no. For the cause of plague has been discovered, its natural history and habits are known, and sanitary science, backed by quarantine, will not allow it to gain a foothold in our favored land. Yellow fever obeys the mandates of quarantine, and cholera and the plague do knock in vain at Hygeia's sevenfold bolted doors. And poets need sing no more in rueful strain of that death which

> "Comes when the blessed seals
> That close the pestilence are broke,
> And crowded cities wail its stroke."

I have commented so far on four only of the nine medical beatitudes with which this discourse began, and time would fail me if I should attempt to set forth in fitting panegyric the other five. Enough to say that bacteriology has given hygiene its strongest arm, the discovery of one particular microbe having made possible the stamping out and expulsion from our planet of the most insidious, persistent, and unerringly fatal disease which now afflicts or has ever afflicted mankind—tuberculosis. And the praise of this belongs to a modest German physician, who did it through his own differential stain. All hail to Robert Koch, all hail! To fame immortal let him go with the blessings of living multitudes and the "thanks of millions yet to be!"

The other four great discoveries have shorn diphtheria and diphtheritic croup of all their terrors and laid the foundations for a scientific system of therapeutics which sounds the death knell of quackery and increases the efficiency of the scientific physician an hundred fold.

But I have said perhaps enough of the noble aims and high attainments of the healing art and the great men whose work in it has been epoch-making in character. Let us glance in closing at the rank and file—the every-day doctor, who holds this sacred legacy in trust, and is responsible to God and to humanity for its exhibition in the lessening of human misery and the lengthening of human life.

When Diogenes, at noonday, with lantern in hand, made his famous tour through the streets of Athens in quest of "a man"—which quest we are left to infer was unsuccessful; we know that the caustic cynic would have found a man every inch to his taste if he had taken boat for the Cyclades and landed at Cos—for Hippocrates was there, and a truer man never contemplated human suffering with deeper sympathy, nor sought more earnestly to relieve it.

Indeed, it would require neither cynical philosopher nor searchlight in free America to find at least one true man in every village, in every clearing, and at every cross-roads—and that man when found would prove to be the earnest, unassuming doctor of the place.

He who accepts the sacred stewardship of the healing art must be in every nerve, fiber and cell a man, or success will not be his. He must have a good head and a good heart. He must have force of character, moral balance, physical endurance, courage (moral and physical), the spirit of self-sacrifice (of martyrdom, sometimes), love for his fellow-man, and faith in the final triumph of good. Without these noble, manly qualities he would never accept and follow through long laborious years a calling whose offices are work for man and abnegation of self.

We are all ambitious when in youth we essay the healing art, and 'tis best so. We dream of eminent attainment, of a name in some cyclopedia, of a footnote in Foster, or Fresenius, of epoch-making discoveries, of honors which "shall with the increase of ages grow, as streams roll down enlarging as they flow." But "youth's long ladder rests upon a cloud"—and before middle age is reached we discover that "the prophet's beacon burned in vain, and now is lost in cloud—," and that we are simply the humble servants of humanity, doing a small but very important part in making saner and happier our fellow-man.

But if we fail to achieve wealth or fame; if we are mercilessly overworked, and often, too often, made to feel the cold breath of human ingratitude, we may take comfort in the thought that no life earnestly devoted to the healing art can in human economics ever be a failure. The doctor is the antipodes of "the man with the hoe."

But the seasons are never always winter, nor is there dearth of human gratitude. The earth withdraws her snowy pole from the absolute zero and utter darkness of interstellar space, and, clad with verdure, adorned with flowers, and vocal with bird-songs and the voices of awakening younglings, goes spinning and singing down her mighty curve into aphelion and golden summertime. Then autumn flames with dying beauty, and winter comes again with the winds that sing the dirges of dead nature. Live your life well. Keep ever in mind the dignity and responsibility of your great stewardship, and, "whether the springtime blossom blows, the summer ray russets the plain, inspiring autumn gleams or winter rises in the blackening east," your round with the seasons shall be perennial in blessings to your fellow-man, while your soul puts forth bud, blossom, and fruitage in thought, word, and deed worthy of the noblest of human callings.

"Who best meets man, not men, as ages move,
Will be secure of human praise and love;
Who best meets man will share, and only he,
With heaven and ocean, immortality."

SPECIAL SURGICAL TOPIC.

I. SURGICAL FANATICISM.

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The title of this paper has been suggested to me by having noticed in my reading during the last several years some remarkable propositions in the line of surgical procedures. In fact, every now and then I have been astonished upon running across proposed surgery, on the face of it so barbarous as to grate on my mind and leave the impression that possibly, in the wonderful advances of the last decade particularly, some of us are being carried away by too much enthusiasm—in other words, are becoming more or less fanatical; in many instances losing sight of the first law controlling surgery, the welfare of the patient.

Several of the procedures, recognized and described both in journal and text book, fall under this class. For instance, the operation known as Kraske's, the resection of more or less of the sacrum to make more accessible growths of rectum or uterus.

I remember well the first time I heard this operation described. It was at the meeting several years ago of the American Society of Gynecologists and Obstetricians in New York, and as a guest I was called on to discuss the paper. The author, Doctor Montgomery, of Philadelphia, reported several cases. I then said that as a procedure to be done by the rank and file of surgeons generally, I thought it unjustifiable. That as Doctor Montgomery was surrounded by all hospital conveniences and everything else to aid him in overcoming shock and combating other complications, one might see a justification for such work occasionally.

Only recently I have heard of an enthusiastic post-graduate man returning to his clientele filled with the desire to shine as a great surgeon; among his first cases were three, according to his judgment, requiring this operation, which he did; all three were gathered to their fathers, and this gentleman was taught a lesson which it is to be hoped he will profit by. Of course this young man would never have undertaken such work if he had not been encouraged by his teachers.

The more I think about this operation the more am I convinced that if the rule of *"the greatest good to the greatest number"* be applied, it is never justifiable.

Kraske's does not compare to some other procedures in severity nor in their dire results. Take, for example, the practice of some fanatics in regard

to the forlorn cases of breast cancer, or rather recurrent cases. I have recently known of a case where a most terrible operation was done, the woman dying shortly thereafter.

The history of the case is as follows:

Miss X., aged forty-two years, came to me for advice concerning a small tumor of right breast. The growth had been noticed for several months; lancinating pains were occasionally present. I advised immediate and radical removal, but between the family physician and the family it was decided to try salves. At the end of fourteen months this lady returned with a large very hard tumor occupying all of right mamma, about to ulcerate; the axillary and subclavicular spaces were filled with enlarged glands. I explained the desperate nature of the case as now presented, but advised as complete an operation as possible, promising nothing except comfort and freedom from the horror of a large slough of the growth. This quite extensive operation was done, and she returned home apparently in good condition. In the course of six or eight months she began suffering with pain over back and through chest generally, and a small nodule appeared over center of sternum quite remote from any incision. My advice was again sought, and I recommended non-interference, as I was sure that there was marked involvement within the thorax, telling her family that opium was their only recourse. It happened, however, that the patient had a relative connected with a large institution in the East where radical breast work was done, and while on a visit to her city he saw her and advised her, against my protest, to go on there and submit to a second operation.

Notwithstanding the fact that he told me that no case of recurrent cancer of the breast had ever been saved there by operation, but remarked, "You cannot afford to kill her, but it won't hurt them if she dies," she was taken on and submitted to the operation, which consisted in the wide removal of all structures, skin, muscles, ribs, and pleura over right mammary region, followed by lung collapse, almost death on the table; after lingering a short time she died.

I think this operation was the result of surgical fanaticism, and how can we wonder at the laity when they form such ideas as they do of surgeons and their ways. If such as this only occurred occasionally it might be laid at the door of faulty judgment and would not be so bad, but this is of daily occurrence. I think this shows a marked lack of conscience and a decided failure to apply the golden rule to our work.

Along this line might be mentioned the late proposal of a man occupying a high position who advocates in supravaginal hysterectomy for cancer the following up of the lymphatics along the broad ligaments and iliac arteries and their removal, thus perfecting the radical work, a proposition so void of common sense and so out of the range of possible accomplishment that it is too absurd to mention, but he is attempting it and recommending it to the

men before whom he appears as a teacher. If the cancerous process is present in the lymphatics of the regions mentioned he could never remove all, and if he could, the fact that lymphatics this far remote from the original growth were involved would be proof that some still further remote from surgical attack would be affected. If the work is done before the glands are affected or simply in an attempt at prophylaxis the same rules would apply. Nobody could be sure of finding the glands. Hence this sort of thing is pure nonsense and should be frowned down by all more conscientious and less enthusiastic surgeons.

The buried sutures of silver wire used in closure of abdominal wounds always struck me as the quintessence of absurdity. What under the sun do they expect of such a procedure? If these sutures remained in the tissues nothing more could be expected of them than could be obtained by a properly applied removable or aseptic absorbable suture; organic union is the only good union; the idea that the wires continue to act mechanically is foolish. This is a fad which I hope will soon be given up, as a great deal of suffering is entailed on quite a proportion of the patients in whom they are placed, during nature's effort to rid the part of these foreign bodies.

Whenever a woman comes to me to have a wire suture removed it reminds me of a funny story I have often heard told.

There was a candy pulling at a certain home in the country; the young women and their beaux had arranged the candy to cool out in the snow, each having a saucer. The youngsters of the family had been sent upstairs to bed; it happened that a shed roof overlooked the place where the candy was arranged. Now these chaps, who thought they were ill-treated, smelled the good things below and undertook to investigate from the roof, which was easy of access from the room window, but much to their horror they found it impossible to stay on the roof on account of the ice and snow and took a tumble, landing on the bunch of saucers. With yells of pain and horror they bounded through the crowd of belles and beaux, their shirt tails flying, and up the stairs each ran, shedding hot "sassers" at every jump. Thus do these poor women go about shedding silver wire loops at every turn.

There are many such fads started by men anxious to have their names tacked on to something new. They work them until the people begin to kick, then they try something else, often just as absurd, but new.

Dr. Geo. M. Edebohls' operation for examination of one or both kidneys through a lumbar incision will be next considered.

This procedure seems to be mere child's play in his hands. It seems to me, to say the least, with anybody else, to be an undertaking of considerable gravity; judging from my own experience in kidney surgery — practically an impossibility. I feel pretty sure that Kentuckians must be of a different kidney from the people Dr. Edebohls is in the habit of working on. I think the best comment I can make on this operation will be to quote the doctor's own words on the subject and let the society draw their own conclusion.

The paper from which I quote was read before the Medical Society of the State of New York, January 28, 1898.

Modern surgery, with improvements in methods, techniques, and appliances, has made exploratory incision, eventration, and examination of the kidney a perfectly safe procedure, and one that can be expeditiously carried out.

Exposure by incision, delivery and examination of both kidneys, with nephrectomy on one side and closure of both wounds for primary union, need occupy no longer than sixty to seventy-five minutes.

The following is the author's present method of procedure in contemplated nephrectomy:

(1). Place the patient prone upon the table, and cleanse the entire width of the back in the lumbar region, so as to be ready to cut down upon both kidneys without the necessity of redisinfection or change of position.

(2). Place the author's kidney air-cushion transversely across the table, underlying and supporting the patient's abdomen.

(3). Incise along the outer border of the erector spinae muscle, the incision extending in a straight line from lower border of last rib to crest of ilium. Should the space between rib and ilium be unusually narrow, the incision is made a little more oblique, so that its lower end will reach the ilium a little outside of the lateral border of the erector spinae. In no case should additional incision, at right or oblique angles to the first, with possible resection of a rib, as still so frequently practiced by many surgeons, be made. The *absolute* necessity for such additions to the simple straight incision must be extremely rare. The writer has not encountered it once in nearly 150 lumbar incisions made for nephropexy, nephrotomy, nephrectomy, and exploration of the kidney; all of his kidney work has been done through the simple straight incision. As the large incision is held to be justified by those who make it on the score of its necessity for examination and delivery of the kidney, I may add to the above statement that in at least 120 of my cases was the kidney completely delivered through the incision.

(4). Continue the first incision through the muscles and fascia of the abdominal parietes until the perirenal fat is reached. In cutting through the abdominal wall avoid injuring the large iliogluteal nerve. Its division is followed by post-operative pains and dysaesthesiae in the upper and outer part of the gluteal region, of which patients complain bitterly, often for months after operation. The intact nerve can generally be hooked either outward or inward during delivery of the kidney. In three cases in which the nerve ran directly across the middle of the incision, and it was impossible to deliver the kidney either above or below the nerve, I have divided the latter, and, after returning the kidney, reunited the divided ends of the nerve by suture. In none of these three cases did the patients complain of the characteristic pain following solution of continuity of the ilio-gluteal nerve.

(5). Cut through the perirenal fat until the kidney is reached. Separate the kidney sufficiently from its connective tissue connections to permit of its delivery.

(6). Deliver the kidney through the lumbar incision. In case the kidney be distended with urine or pus, first draw off the fluid by aspiration to diminish bulk. At first I often experienced difficulty in delivering the kidney, until some years ago I hit upon the following method. With it delivery of the kidney, in nearly every instance, becomes a charmingly simple affair. An assistant, standing at the foot of the table, grasps the lower limbs of the patient and draws the patient toward him. In doing so the patient rolls along on the kidney cushion until the latter, instead of compressing the abdomen, comes to lie underneath the anterior surface of the lower half of the thorax. Compression of this portion of the thorax squeezes the kidney out from beneath the ribs, causing it to present fully in the wound. With a little more or less assistance on the part of the operator, sometimes, indeed, without any assistance whatsoever, except the above maneuver, complete delivery of the kidney is effected.

In the two instances of renal hemorrhage above related I laid both kidneys simultaneously side by side upon the skin of the back for more careful comparative study.

(7). Palpation of every part of the kidney, of its pelvis, and of a greater or less length of ureter can now be performed. If indicated, any of the necessary operations upon the kidney, puncture, nephrotomy, exploratory or therapeutic, nephrolithotomy, resection of the kidney, etc., can be carried out. If a conservative operation be performed upon one kidney, exploration of the other kidney is not called for. Nephrectomy is easily performed by tying the renal vessels and ureter separately with forty-day catgut and cutting the kidney away.

(8). After completion of examination or of operation, except nephrectomy, the kidney is returned within the abdomen. If a healthy kidney has been found movable prior to operation, nephropexy should be performed. Unless drainage of the interior of the kidney be called for, or the wound surfaces have been soiled by infectious matter, full closure of the lumbar incision for primary union, without drainage, should be the rule. This rule holds good for both incisions, the nephrectomy as well as the exploratory. The writer closes the deep layers of the wound, the abdominal parietes proper, with buried sutures of forty-day catgut, and the skin with the subcuticular suture.

As stated above, I can not bring myself to believe the procedure as outlined by Doctor Edebohls can ever be a "charmingly simple affair," and the propriety of advocating and publishing it as so simple a matter might result in much mischief.

I will next quote a short editorial notice from the New York Medical

Journal, which explains itself and will act as an introduction to the most remarkable surgical proposal yet mentioned.

"Normal" Prophylactic Removal of the Vermiform Appendix.

"The proposition having been recently advanced that, in view of the dangers of appendicular inflammation and the comparative ease and innocuousness of the operation in uncomplicated cases, its removal in the case of all young children should be practiced as a routine measure, as Jews practice circumcision, the editor of the Medical Review invited a number of representative American surgeons to express their views thereon. The surgeons' answers are published in the Review for March 17th, and the result is almost exactly what we should have expected—viz., that out of eighty-eight surgeons replying to the query, eighty-three express themselves more or less strongly in condemnation of the proposition. We say 'almost exactly' what we should have expected advisedly. Our only surprise is that five should have been found to write with toleration of it."

As I understand it, one Doctor Pollock is the man proposing this preposterous idea, and as Doctor Foster in his editorial says Doctor Loeb, editor of the Medical Review wrote a circular letter to quite a number of surgeons to ascertain their views on the subject, I will read a few of their replies, as they are very interesting.

Dr. W. W. Keen, Philadelphia, President American Medical Association and Professor of Surgery, Jefferson Medical College:

"I do not think as a general rule that the appendix should be removed in children in order to prevent appendicitis. If the operation were done only by skilled surgeons, in whose hands the mortality would be extremely small, it might possibly be considered. Even then I have my doubt about it. But to recommend it as a routine measure for every surgeon and so-called surgeon, would result, in my opinion, in a much larger mortality than follows the disease."

Dr. J. M. Baldy, Philadelphia, Professor of Gynecology, Philadelphia Polyclinic:

"The proposition to remove the vermiform appendix in children as a prophylatic measure is in my opinion 'folly run mad.' I should as soon think of removing the ovaries or womb to prevent a possible development of a future ovarian cyst or a fibroid growth of the uterus."

Dr. R. F. Weir, New York, Professor of Surgery in Columbia University:

"I am not prepared to advise such a procedure as this. It seems, however, rational, since the mortality and the risk of hernia have been reduced nearly to zero, that it should some time in the future come into use when the general practitioner shall have been educated up to the required operation. Failing this, there will of necessity be developed special operators with small fees, similar to those rendered for a circumcision. I hope, however, not to live to see the result of this new Oklahoma field of surgery in which so many tyros and zealots will rush in to disport themselves."

Dr. L. C. Lane, San Francisco, Professor of Surgery, Cooper Medical College:

"The removal of the appendix from the infant would not be unwise."

Dr. Merrill Ricketts, Cincinnati:

"Appendectomy in children as a prophylactic measure against a pathologic appendix from any cause should be encouraged because:

1. Its removal is absolute.
2. The appendix is useless.
3. There are but five in ten thousand persons who do not have an appendix.
4. Any one or all of the remaining nine thousand nine hundred and ninety-five may have disease or mechanical obstruction to itself or bowel sufficient to produce illness or death, or both, at any age.
5. The appendix is more easily found when not diseased.
6. Its removal is as absolute and positive in preventing disease and death as vaccination is for same from small-pox.
7. As small-pox and many other diseases have become less severe and fatal by continued vaccination, just so would the appendix disappear by evolution if removed before the age of procreation.
8. The mental anxiety incident to the operation in childhood is minimized.
9. Children do not have marital, social or financial obligations to cause worry.

The mortality should not be one-half of one per cent. if normal appendices are properly removed during childhood.

Children are not so likely to have the habits and diseases incident to later life, viz., excesses, exposure, intemperance, kidney, pulmonary, neurotic, gonorrheal or syphilitic affections, to influence results.

Peritonitis less frequently follows simple abdominal incision in childhood, probably because of increased activity of the lymphatics.

There would be no disease of the right ovary or generative tract (to preclude the possibility of conception) as a result of secondary infection from a pathologic appendix."

Dr. A. C. Bernays, St. Louis:

"I admit that the operation of epityphlectomy can be done by some surgeons without mortality upon healthy young people.

When the cases are in any way diseased, locally or generally, there will be some mortality following epityphlectomy.

The operation if done by some surgeons will be free from danger to life and free from bad after-effects.

If the operation is done by amateurs in surgery, or by persons who have only egotistic ambition as a qualification for the practice of surgery, it will be followed by deaths and abdominal hernias.

If the appendices of all children before the age of five years were removed for two hundred years, every child would be born with an appendix just the same after that as before. I would be willing to concede that the appendices of those born after the operation had been done one hundred centuries might possibly show a slight reduction in size, but there would still be appendices which would often become troublesome."

Dr. D. A. K. Steele, Chicago, Professor of Surgery, University of Illinois:

"At present I am not in favor of removing the appendix in children as a prophylactic measure against appendicitis. I believe more harm than good would result in the adoption of such a measure. A host of young would-be surgeons would take it up if it was approved by the best surgeons of the country, and the result would be numerous infections of the peritoneum, a number of deaths, many ventral hernias, and the average results in regard to longevity, bodily strength, and immunity from disease, I think, would be disappointing when accurate statistics were obtained."

Arch Dixon, Sr., Henderson, Ky.

"I should heartily favor the measure, as I believe that, in good hands, the mortality in such cases would be practically nil. That this would be a great life-saving measure goes without saying; but I think it will require a good deal of education to convince parents of the fact, however. I do not doubt but that this will be gradually accomplished."

I will pass these without further comment, saying simply that it bears out my assertion in the beginning of the paper that some of us have gone daft with surgical enthusiasm. I will mention a few more points and then close this paper.

There are still among us many of the circumcising fanatics. Twenty years ago there were many followers of the great champion of this procedure as a cure-all for many of the ills of both boys and girls. When there was no foreskin to be removed, the clitoris was attacked. Little sufferers with infantile paralysis, Pott's disease, hip disease, chorea, worms, and almost anything else were subjected to this nearly always unnecessary mutilation. I believe circumcision never ought to be done unless there is some positive local reason for it. This very rarely ever exists in childhood. There would be no foreskins without good reason for them, and I am sure if early reflexion is done by the age of ten years, all the uncovering of the glands necessary is accomplished by the process of development. Hence these faddists should be more conservative.

I was struck by the following, which explains itself:

"LIGATION OF THE ABDOMINAL AORTA."

"As there have been some erroneous statements made in reference to this case, which is of very unusual surgical interest, we have been at some pains

to ascertain the exact facts and state them herewith. The patient was under the professional care of Drs. James C. Wilson and W. W. Keen, first in the medical and then in the surgical ward of the Jefferson Medical College Hospital, for an aneurysm of the abdominal aorta, as large as a large orange, situated half way between the umbilicus and the ensiform cartilage. The patient at first refused operation, and left the hospital, but a few days later returned, when it was found that a large retroperitoneal leakage had occurred, filling the entire left side of the abdomen with an immense clot. The aorta was tied December 20, 1899, four parallel strands of floss silk being used. The aneurysm had lifted up the pancreas so that it lay just behind the anterior abdominal wall. The patient died forty-eight days after the operation. At the moment of ligation the femoral pulse disappeared, the upper extremities, especially the head and neck, became greatly congested, pulsation ceased in the sac and the sac itself shrunk to about half its size in a few minutes. A faint femoral pulse was perceptible in the evening of the same day; the pulsation began in the aneurysm again within three days. The necropsy showed that the lesion was a false and not a true aneurysm, the wall of the sac being made up of peritoneum and other tissues in front of the aorta. The posterior wall of the sac was formed in part by the bodies of the vertebrae, so that when the specimen was removed from the body there was a large hole in the sac at this point. In the anterior wall of the aorta was a large opening (the cause of the false aneurysm) nearly sufficient to admit the end of the finger, the edges of the opening being rounded off as the edges of a trephine opening are after a long time. Death resulted from hemorrhage at the point of ligation. The four strands of silk had completely cut through the aorta and there was no clot either above or below the ligature.

This, we believe, is the twelfth case of ligation of the aorta. Nine patients died within twenty-four hours, one lived about two days and a half, a third, that of Monteiro, of Rio Janeiro, lived between ten and eleven days. The results in the present case show very clearly to our mind that ligation of the aorta with modern antiseptic precautions is quite feasible."

I would simply ask where the feasibility comes in twelve operations and twelve funerals?

I will now read a clipping illustrating how far a man's nerve will take him with nothing but theory for a backing.

"If it is ever again Sippel's experience to have the heart action stop while the respiratory function and reflex excitability are still retained, as in a typical observation he reports, he will at once expose the pericardium or the pleura through an incision in the fourth or fifth intercostal space and, by rhythmic application of the induced current to the heart, endeavor to stimulate it to contract, and in case this fails, send an interrupted current through a fine needle inserted into the heart muscle itself, the other electrode applied anywhere to the thorax. Landois quotes, in his 'Physiology,' that when

the contractions of the frog's heart have become weak and irregular they can be made regular and normal again by electric stimuli applied in a rhythmic isochronous series. The heart responds with the same energy to the feeblest as to the strongest stimulus. By this rhythmic faradization applied directly to the heart tissue, combined with artificial respiration, etc., Sippel thinks it possible to restore persons who now succumb in spite of all our efforts. By analogy with the action of chloroform on other nerve centers, it is reasonable to assume that the cardiac nerve-centers would also quickly resume their automatic activity after chloroform paralysis, if, by the means described, we are able to flush the heart with blood richer in oxygen and poorer in chloroform. Sippel states that he now never administers chloroform without a physician as the anesthetist and, if possible, with still another assistant for the mechanical part of the work."

The forcible correction of the deformity in Pott's disease might be mentioned, and possibly the operations about the Gasserian ganglion might be wanting in justification, if we could get at the outcome in all of the cases, but I have said enough to start the discussion, which may develop much more.

In closing I wish to say it is far from my intention in the least wise to check the wheels of any legitimate surgical progress, but I do think that the pendulum is inclined to swing a little too far, and I hope soon to see a general reaction set in with common sense and conscience at the bottom of it.

DISCUSSION.

DR. A. J. SLATON, Leitchfield: As to the position taken by Dr. Vance with reference to removing the appendix, I heartily agree with him that it is entirely out of the question to remove the appendix in every child while it is so small. As to the position he takes regarding circumcision, I take issue with him. I believe that every male child ought to be circumcised early in life—eight days old I would make it—from the fact that, according to the able paper that was read yesterday on the subject of syphilis, it would be a good thing to remove the foreskin early in life. It would be a great step in the right direction towards preventing many cases of syphilis. The foreskin seems to be a superfluous part of the generative organs. Evidently it retains foul secretions and is liable to retain diseased germs, and is the cause of a great deal more trouble than if it were removed. The removal of the foreskin would do away with a great deal of venereal disease; it would be of benefit to the child as he grew older, as I find in a great many cases the foreskin becomes adherent to the glans from retention of smegma and other foul secretions. Where the foreskin is removed this is all done away with. Personally, I think it would be a good idea to circumcise all male children at birth.

DR. J. P. GILMER, Louisville: I agree with the previous speaker in regard to early circumcision. I agree also with the essayist with reference to the operation for appendicitis, and I think it should not be considered for a moment in children. As to circumcision, during a considerable experience in dispensary practice, and seeing upwards of 6,000 cases of venereal diseases, I have never yet seen a chancre appear upon the penis of a man who had been

properly circumcised. I believe that circumcision will do more than any other one thing to do away with syphilis, which at this time is one of the greatest horrors we have to contend with. I avail myself of every opportunity to resort to circumcision.

DR. PRESTON B. SCOTT, Louisville: I desire to say that I observe with much satisfaction one feature in the Doctor's paper that pleased me, namely: his reference to the removal of the mammary gland for malignant disease. There is nothing that has confronted physicians more, particularly in times past, than the difficulty of assuring our patients, when they come to us with a mammary tumor of a suspected kind, that it would not return after removal. Some of my professional friends will bear me out in this statement, that it was very embarrassing to say to patients that this tumor ought to be removed, with the satisfaction that it will not return again. I can safely say to my patients now with some degree of satisfaction, under our modern system of technique, that this growth will not recur in the infected part. It has pleased me very much, in observing operations that have been performed on some of my patients, with what care, in comparison with the older operations, the modern surgeon operates for the removal of every infected gland in the infected area. The removal of a mammary tumor is a simple operation, even to a doctor who does not profess to do surgery; but it takes a good anatomist and the most careful manipulation with the scalpel to remove all the glands that surround this delicate network of arteries and veins in the axillary space. I speak from recent observation, and nothing has impressed me more than a thorough knowledge of the anatomical structures involved. Of course, we cannot guarantee that the disease will not reappear elsewhere. We all know that malignant disease will almost invariably, after a term of years, reappear, but it is a satisfaction to be able to say to a patient that her disease will not recur in the region operated upon.

DR. J. G. SHERRILL, Louisville: This paper expresses the opinions of conscientious surgeons upon the subjects that have been mentioned. I believe the profession is always injured when we attempt operations which can give no permanent benefit to patients. We not only do ourselves great harm, but the profession itself, when we attempt things that are impracticable. I believe that the recommendation to remove the appendix in every young child is unjustifiable. I believe that cases of appendicitis are more frequent now than they have been formerly, and still the number is small as compared with the population.

There were other operations mentioned, as, for instance, the ligation of the abdominal aorta. Where can the benefit come from this ligation, which at best cannot prolong life to any great extent, and which will probably prove fatal? Whenever we advise and urge a patient to submit to an operation, if there be a fatal termination, we subject ourselves to criticism. The laity have a fashion of saying the operation was a success, but the patient died. It is all very well to attempt to relieve patients, where there is a possibility of hope of a perfect result, or of some temporary benefit to the patient. Where we exclude temporary benefit I believe operations should not be attempted, and particularly by men who are more zealous in furthering their own interests than those of the patient or of the profession.

DR. HENRY E. TULEY, Louisville: In this connection I would like to mention a fanaticism which comes under the head of obstetric surgery, recommended by some Canadian surgeon, and that is to make digital exploration of the

uterus at the completion of the third stage of labor in every and all cases, to be sure there has been no retention of membranes or placenta. It seems to me that this is the most absurd advice, that every practitioner should explore the uterus with the finger with a view to ascertaining whether or not pieces of the membranes or placenta are left behind. The danger of any of the secundines being left behind is not as great as the possible introduction of sepsis by exploration with the finger. I merely mention this as one of the obstetrical fanaticisms of the day.

DR. JAMES B. BULLITT, Louisville: If normal appendectomy should be performed I do not think that this horrible operation of epityphlectomy should be done. I do not know exactly what the latter term means, but it would seem to signify everything in connection with typhlitis, and it certainly would be a more serious operative procedure than appendectomy itself. In considering some of the so-called fanaticisms of surgery we must look upon the authors with a certain grain of lenience. We must recollect that many of the operations that are to-day well recognized surgical procedures, some decades ago would have been looked upon by the surgeons of that time in the same way perhaps that we are inclined to regard at present some of the operations that have been discussed by Dr. Vance. Unquestionably he is right in his criticisms of all operations that have been enumerated in his paper. It seems to me, however, that we should have a little compassion for so-called experimental surgery, for the reason that much of the surgery of to-day is based upon experimental work, and if there had been no fanatics or hobbyists we would not be able to save as many lives as we are able to save to-day.

DR. VANCE (closing the discussion): I am very much obliged to the members of the Society for the interest they have taken in my paper. With reference to circumcision, I have been practicing surgery now for twenty-four years, and I know from experience that if the prepuce is reflected back within the first year of life, when the patient reaches the age of ten years there will be no reason for such a procedure. It has been conclusively proven that circumcision is not a harmless procedure. A hundred Jews have had their urethras examined by a mechanical contrivance for testing its size, and a hundred more, who have not undergone circumcision, have had the same procedure carried out, and in the latter series of cases the urethras have been proven to be much larger. This is an argument against circumcision. It would seem to me to be a useless operation, except when there is some mechanical call for it, such as a fibrous contraction of the preputial outlet, or some pathologic condition on the inside that cannot be very well treated; as a balanitis, or something of that kind, which rarely, if ever, occurs in infancy. The Almighty had some good reason for putting the foreskin there.

SPECIAL MEDICAL TOPIC.

I. NEPHRITIS CONVENTIONALLY CONSIDERED.

U. V. WILLIAMS, M. D.,

FRANKFORT, KY.

When requested to prepare an address for this meeting of the Kentucky State Medical Society, and was allotted the subject of nephritis, I instinctively shrank from the task, so multifarious are its forms and, unfortunately, its frequency; so very exhaustively treated and so voluminous the literature upon the subject. I have never wandered any direction that the path was not strewn with tracks of those who had previously trod the way. I am neither a pioneer nor a scout in literature, using the rifle of the sharpshooter, but rather follow with the infantry and use the gatling gun. So the title of my paper should be rather "Some Desultory Suggestions as to the Functions and Pathological Conditions of Nephritis," or "Nephritis Conventionally Considered." To treat any one of the various forms in an exhaustive manner or to attempt to even consider the abnormalities of each would be beyond my limit of time or ability.

Col. Ingersoll, once during a public lecture, was asked when he was holding up the "mistakes of Moses" to public ridicule, what he proposed to better conditions; he replied that he would make *"health catching."* A brilliant reply; but for all that he was wrong, for health *is* catching.

The nice adjustment of nature from birth to death is one constant act of health catching. Only one failure of nature allows pathogenic bacteria and other micro-organisms to develop. We are all the time running the gauntlet of death, and that we live at all is one of the profoundest miracles of the universe, and according to Spencer we live by adaptation, and all biologists adopt the proposition. We have within us some very wonderful chemists, which we call cells, and but for their accurate skill every article of food we eat would be to us as dangerous as poison, where now we have assimilation of supporting substances.

Every normal product of one part of our bodies would become deadly if appropriated by another and not very remote part. Only consider carbon dioxide, urea, etc., giving us strength when properly directed; but a fatal element when misdirected. Peptone is life-giving when directed in a proper channel, but a poison if injected into the blood. Abrin, the most deadly poison when injected into the blood, can be and is eaten in the form of the crude plant by the natives of the West Indies, as they do licorice, which it somewhat resembles.

In the light of the above conditions, which are axiomatic truths, we view the functions of the kidney with the greatest admiration, but, when they are misdirected, with the greatest alarm; they are the scavengers of the body whose duty it is to remove beyond danger obnoxious principles and products constantly accumulating and forming in our bodies. They must eliminate the effete matters, the waste material and all products of tissue waste of all pathological and physiological conditions; a failure in any of the hundreds of duties immediately is reflected upon the system in a special form, and gives rise to a special and sometimes a specific form or abnormal condition.

In that form of nephritis which is familiarly known as Bright's disease the albumin is secreted by the malpighian (bodies) capsules. In fatal cases this may be found by autopsy, but in health no such action or condition has been found to exist. Albumin thus secreted exhausts the supply in the normal blood. Albumin found in the urine may be caused by accidental causes, food of certain kinds, such as beer, alcohol, the excessive use of tobacco, cardiac pressure, asthma, pregnancy, diphtheria, scarlet fever, which would indicate an acute nephritis and which would be the subject of proper treatment and sanitary conditions.

Destruction of tissue or alteration of the anatomy of the organ is manifested by the presence of pus, tube casts, and blood corpuscles, and is of the utmost gravity.

Interstitial nephritis and a condition of the kidney arising from valvular disease of the heart is extremely difficult to diagnose. If properly directed cardiac treatment gives relief, we may safely infer the heart is the cause. If the symptoms are of kidney origin no benefit will be derived. This may not be a very scientific method of arriving at a diagnosis, but to the writer the only one he has found trustworthy.

The variety of nephritis to which the attention of the general practitioner is most frequently called is acute parenchymatous nephritis, for rarely is a specialist consulted until the family physician has exhausted his skill, failed of course, and for self-relief as well as to encourage the patient, he is referred to the expert. If the specialist fails he can well say he did not see the patient until too late, and for that matter, neither did the general practitioner, for it was not curable. When a cure is effected I am inclined to think there was an error in the diagnosis, and if not Bright's disease any one could have cured it. A truly organic disease of the kidney in any form, neither the one nor the other can do much for the unfortunate. In this variety, acute parenchymatous nephritis, when first seen the kidneys have lost no weight nor size. Capsules are non-adherent, the epithelial cells in the convoluted tubes are swollen, but no casts are found on examination of the urine, because the cells have not yet become granular, as they do in more severe cases. Sometimes in rapid cases blood and pus may thus early be discovered; such cases are rather frequent and almost surely and rapidly fatal.

In the chronic form these conditions are no less pronounced but of slower development; the gravity none the less, but a fatal termination equally certain. In the term acute diffuse nephritis is embraced acute Bright's disease, acute desquamative nephritis, acute tubular nephritis, croupous nephritis, acute albuminura, the first stage of chronic Bright's disease, acute parenchymatous nephritis, and glomerular nephritis, all of which are very nice distinctions, doubtless, and make fine literature, and possibly much reputation; but to the general practitioner are of little or no value. He comes very near the true diagnosis of the case when he tells his patient that he has consumption of the kidneys, omitting the term tuberculosis for the sake of making himself clear to the understanding of the laity.

The experience of forty years in a general domiciliary practice, embracing a clientele of all conditions, ages, and sexes, has led the writer to class the very large majority of cases of any form of nephritis as of tubercular origin. Of course those acute and transient cases supervening on diphtheria, scarlet fever, pregnancy, cold and exposure are excluded. I also consider the prime productive factor to be the same in diabetic cases; the latter more directly traceable to heredity.

The beginning of most cases in my experience is the uric acid diathesis engrafted upon an hereditary or acquired tendency to tuberculosis, as I have long believed that constitutional mucous inflammations are referable to one of three prime factors—tubercular, diphtheritic or specific; and by specific I mean syphilis and cancer.

Hay, Keyes, and Taylor all point to the support of my position, and certainly most cases have been first diagnosed and treated by myself and others as a breaking down of the kidney, accompanied by an over-acid urine, with an excess of uric acid and a condition of oxaluria. Uric acid does not exist in the body as such normally, its normal condition is that of a quadri-urate of sodium, potassium and ammonia. When these are split up and the uric acid is set free, we have calculi, developing inflammatory action in the renal bodies, favoring impaired function and pathological conditions. By the non-elimination of these quadri-urates they take up another atom of base, are converted into bi-urates, which being more stable, will be deposited in various tissues, especially in the renal bodies, rapidly producing disintegration.

These pathological conditions are largely due to excessive mental worry, rush and hurry of commercial life, manifested in a breaking down of the kidney or rendering his offspring more susceptible, thus promoting the rapid increase of the disease in each succeeding generation until it is known beyond the Atlantic by our altruistic friends as "The American Disease."

Also has the writer convinced himself that the unusual use of ice during the summer season, so universal now, as compared with the preceding generations, has influenced the tendency to nephritic diseases. This produces

arterial pressure by contraction of the larger vessels of the chylo-poietic and the thoracic systems, thereby increasing the pressure upon the renal arterioles.

In the year 1848 Dr. Bright first called attention to these conditions and gave it the name "Bright's Disease." He did not enumerate the use of ice as a cause; but his advanced teaching clearly makes it possible to my mind that the use of ice at a season of the year when the conservation of natural forces ordained by our Creator put the use of ice out of harm's way, and was the reason of my accusation of the luxury. In the time of Bright only the few stored away natural ice in the winter for their use in summer. It was a luxury the great masses could not indulge in, few even of the sick could use it; the almost universal custom of the profession was to exclude even cold water from the sick, and such a practice as ice-packs in fever would have been regarded the grossest malpractice. Woodbury would have been hanged as a witch in Salem for advocating his treatment; when we now consider the cheapness and the universal excesses of the ice fiend every individual is in a manner inviting nephritis, which is the first step on the road to diseased kidney, especially of varieties described as croupous, tubular, and parenchymatous, with other and more serious, fatty, atrophied and cirrhotic.

None will dispute that cardiac and renal lesions are intimately connected.

Valvular lesions and arterial atheroma produce congestion of the kidneys, and chronic diffuse nephritis rapidly follows the hypertrophic left ventricle.

In organic bodies sugar resolves itself into fats and starch; oxygenation constitutes tissue building; excess of sugar clogs capillary circulation; nitrogenized fibrin and albumin, unlike sugar, can not be resolved into its component gases and still maintain its normal qualities. Decomposition must result, setting free fermentation and decomposition which *per se* obstructs elimination through the capillaries and clogs those capillaries of the mucous membrane in the renal bodies, which is the first potentiality of acute nephritis.

If this is true, as Carpenter and other physiologists indirectly admit, disintegration must ensue, and as the kidney is the chief eliminator of all hydrocarbons, a local abnormal condition must result at the most exposed point, which is the kidney body; and when we are informed that the people of the United States are the most enormous consumers of sugar of all or any other countries (519,000 tons), may we not infer that chemically sugar is another great factor in the production of Bright's disease or albuminuria?

II. RENAL INSUFFICIENCY.

JOHN G. CECIL, M. D.,

LOUISVILLE, KY.

"For the proper performance of the function of the kidneys there must be:

"First. A free supply of blood to the kidney, a free circulation of blood through it, and an easy escape of blood through the renal vein. Any obstruction to the flow of blood, any changes in the tufts of the glomeruli, and any obliteration of the capillaries interfere with the function of the kidneys.

"Second. The blood supplied to the kidney must be of normal composition; otherwise there will be a change in the character and quantity of the substances excreted.

"Third. The uriniferous tubules must be of normal size and unobstructed. The epithelial cells which line them must be healthy."—*Delafield.*

With the statement as to what constitutes renal sufficiency it will be the easier to define renal insufficiency. In a word, anything that interferes with the normal function of the kidney results in an insufficiency. Consider the delicate adjustment of structure and circulation, the manifold contingencies upon which proper function depends, the irritating and poisonous nature of the excretion, the frequent abuses to which these organs are subjected, the vicarious and complementary work assumed by them, and the wonder is that any kidney retains its functionating power throughout an ordinary lifetime.

As Bouchard indicates in his "Auto-Intoxication," man is constantly standing, as it were, on the brink of a precipice; he is continually on the threshold of disease. He is ever living under the chance of being overpowered by poisons generated within his system; he is always working toward his own destruction; he makes continual attempts at suicide by intoxication. Self-poisoning is only prevented by the activity of his excretory organs, chiefly the kidney.

The importance of the kidney as an emunctory cannot be overestimated nor ranked second to that of any other. Suspended or incomplete function quickly manifests itself in a group of well-known and often alarming symptoms.

Urine as a whole, and in its component parts, is poisonous, but the urine from an inadequate kidney is not as toxic as from a healthy kidney for the simple reason that the poisons are not eliminated but retained in the blood. From ancient times healthy urine has been regarded as poisonous, but this truth was only established by conclusive experiment in 1880 by Feltz and Ritter. Bouchard has shown by beautiful and ingenious experiments "that there was not one particular urinary poison, but that urine contains at least

seven toxic substances: A diuretic substance (urea); a narcotic substance; a substance that produces salivation; one that contracts the pupil; one that lowers the temperature, and two substances, one of organic nature and the other mineral, both producing convulsions."

These discoveries explain the variegated aspects of uremic poisoning. It will be seen from the foregoing definition of renal insufficiency that the subject is vast and comprehensive in one sense, practically embracing all diseases of the kidney; the purpose of this paper, however, will be to develop only a few practical points.

It will be unnecessary in considering the causes of renal insufficiency to do more than to group them under two heads, functional and organic.

It should not be forgotten that persistence in a purely functional disturbance of urinary secretion may eventuate in organic structural degeneration of the kidney. Examples of functional disturbance resulting in faulty elimination are seen in the active or arterial congestions of the kidney, associated with the infectious diseases or the ingestion of chemical poisons. In this instance the impression is evidently most pronounced upon the glomerular tufts and there is an insufficient amount of water secreted, consequently the urine is scanty, high colored and of high specific gravity and frequently albuminous.

That water is of utmost importance as a constituent of urine simply as a solvent of and to facilitate the excretion of the solids is shown by the rapid supervention of uremic convulsions and coma and death following total suppression of urine, whether organic change be present or not.

Failure in sufficient elimination due to structural or organic change in the kidney is fully illustrated and typified in pathological changes seen in interstitial nephritis. For a long time the impresssion is mainly upon the tubular portion. The solids are deficient, while the watery portion may be unaffected. Here insufficiency is manifested by a great group of symptoms. While yet it is impossible to tell, it is probable that each symptom is produced by the retention in the blood of some particular poison. That these separate poisons differ in their importance and toxicity is shown by the fact that a reasonable degree of health and activity, both mental and physical, may be maintained for an indefinite period in the presence of an insufficient or incomplete excretion of the urinary solids. But an absolute suppression of the solids will result in prompt and certain destruction as surely as suppression of the watery portion.

The conclusion, therefore, is, that a kidney is insufficient that does not eliminate every ingredient of urine, and any failure to do so will sooner or later be shown by ill results. If this be true of normal urine, how much greater is the responsibility and the work of the kidney in dealing with a system laden with the products of disease. And if such is the work of a normal kidney, how greatly magnified will be the embarrassment of a diseased kidney.

Upon inquiry into the results of insufficiency on the part of the kidneys we witness a sum total of symptoms that covers a large field in pathology. The grosser symptoms resulting from non-elimination of a normal quantity of the watery portion is seen in edema of extremities and internal organs, accumulation of serum in the various cavities, and the embarrassment of organs resulting therefrom.

The retention of the urinary solids manifests itself in a hundred different ways; some are plain and easily read, others obscure and demand closest scrutiny to recognize. Scarcely an organ or a system of the body that will not be affected; the special senses, the blood, the nervous system, and the digestive apparatus bear the brunt of this faulty work of the kidney.

It is the finer and more obscure results of insufficiency that demand especial attention, inasmuch as they indicate the incipiency of renal disease, thereby giving warning of what is portending; enabling the careful watcher to anticipate, to forestall and to prevent.

The crowning and all-embracing result is, for want of a better term, known as uremic poisoning. It is certain, however, that the retention of urea alone is not responsible for the entire group of symptoms which indicate uremic poisoning; neither can any one of the several toxic agents be held solely responsible, but each doubtless contributes a share in producing a general toxicity.

"The knowledge of the multiplicity of the toxic agents enables us to understand, according to the one which predominates, the many clinical features that uremic poisoning may assume, particularly the convulsive and comatose forms. It explains also the appearance of certain special symptoms, such as low temperature and pupillary contraction."—(*Bouchard.*)

But the continued diminished quantity of urea, as shown by rapid and rough analysis, is of great importance. This fact can be readily ascertained by any one, is one that must not be neglected, and is always of greatest significance as indicating not only the insufficient action of the kidney, but also the retention and accumulation of urinary solids in the blood. For those not expert in urinalysis it is the best guide to renal insufficiency.

The importance and necessity of constant, persistent, we might say perpetual interrogation of the kidney function can not be exaggerated. If we would be in possession of accurate and comprehensive knowledge of what the kidneys are doing, not only in states of well-recognized disease, but in conditions of comparatively good health, we must insist upon frequent urinalysis by competent observers.

Too many busy doctors content themselves with one or two rough and incomplete examinations, covering the reaction, specific gravity, albumin and sugar tests. How often are we told that a certain man, suddenly overtaken with uremic convulsions, had only recently been accepted by an insurance company for a policy upon his life. How often following a stroke of apo-

plexy does examination of the urine show an inadequate kidney hitherto unsuspected. Do not these surprising revelations too frequently stand as accuser of the family physician and convict him of carelessness?

Nothing short of frequent, careful and thorough analysis of the urine will satisfy the demands of modern progressive medicine.

The treatment of renal insufficiency varies naturally according to character of the disturbance, whether it be functional or organic. If the insufficiency be due to acute congestion or inflammation, as is seen in acute parenchymatous nephritis due to influence of cold or following an infectious fever, the first essential in treatment is to give the kidney rest. This is accomplished by calling upon the other emunctories to take up the burden of elimination properly belonging to the kidney and by the administration of diluent drinks. Obviously it is bad practice to give diuretics, thereby endeavoring to force a crippled organ to perform even its normal function during an acute inflammatory condition. Food should be of that kind that will throw the least burden on the kidney, putting into the blood the minimum quantity of poisons to be disposed of.

Tissue waste is also combated with partial success by modern methods of combating fevers, in this manner diminishing the work of the kidney.

Incomplete elimination due to organic disease of the kidney presents a difficult problem. While it is doubtful if much impression can be made upon structures already degenerated by any means known to our art, still much may be done in the way of prophylaxis and in lessening the burden normally imposed on these crippled organs. Functional disturbances either of frequent repetition or due to a diathesis producing an irritating urine leading to organic change may be often successfully met by prescribing proper food and drink, by attention to rest, proper clothing, exercise and hydro-therapy. In such alteratives as the salts of mercury, potash, and strontium we have therapeutic agents that may work beneficial changes over diseased structures. In the presence of passive congestion we have valuable aids in digitalis and other heart stimulants, either singly or in combination with potash and other salts.

III. NEPHRITIS: ITS FREQUENCY AND THE IMPORTANCE OF ITS EARLY DIAGNOSIS.

J. A. HUMPHREY, M. D.,

HENDERSON, KY.

The medical profession is eager in the pursuit of more accurate knowledge of all that pertains to disease and its treatment. We are in possession of many very gratifying proofs of advances all along the line, and we are steadily gaining vantage ground here and there, yet we are far from a complete knowledge of the morbid processes that mark the progress of many diseases. The surgeon's knife has invaded almost every organ and part of the body, and made it possible to inspect and handle every tissue, in both health and disease, vivisection and post mortem examination have familiarized the scientific mind with the characteristics of animal tissue and functionating structures under all conditions, the microscope has revealed to the human eye the essential features of organized matter, both living and dead; the Roentgen ray has made plain many morbid conditions, and revealed the existence and exact location of luxations, fractures, neoplasms and foreign bodies heretofore hidden in the dark recesses of closed cavities or submerged in the tissues. Chemical reagents have given correct knowledge of the essential characters and morbid conditions of many, if not all, the body fluids, while clinical observation and experimental research have demonstrated the significance of the varied phenomena of both physiological and pathological processses. The mind that would master the science of medicine may not exclaim that "all things come to him who waits," but rather that there is "no excellence without labor," and that "labore omnia vincit." This is an age of specialism, and specialism has the charm of rendering definite results and making men more efficient; hence a thing to be encouraged. But has not the tendency been to make much of certain organs and regions to the harmful neglect of the other regions and organs equally as important to life and comfort?

While some able treatises are extant upon diseases of spleen, pancreas, thyroid gland and kidneys, yet these organs are not as familiarly known as their importance seems to demand. The function of the kidney is an important one, hence a failure or disturbance of function is of much moment. As is well known, the process of waste and repair is constantly going on in the economy, and waste means excrementitious products; that which is builded to-day is razed to-morrow, which means debris; where destructive agents and metabolic processes are constantly in operation there is need of a scavenger, hence the kidney, being the sluice gate through which much of the effete material is carried off, must be an organ worth the attention of physicians. If

sewage is to be removed, the sewer system must be in order. Nephritis blocks up the sewer, either partially or completely, and contamination must of necessity follow. Nephritis, then, is a subject well worth investigation. I shall not speak of nephritis in all its phases, stages and pathological conditions, but shall leave that to the text books upon the subject.

One may easily be confused by the many divisions of this disease, and the various classifications as to pathology employed by the different authors. The crying need of the hour is a more simple nosology. To the student of medicine a simple classification is a source of much gratification. Than nephritis, no disease has been honored by a greater number of titles or made difficult of study by reason of a greater multiplicity of terms. In 1827, Dr. Bright produced a paper upon inflammation of the kidney as an independent affection, since which time his name has been constantly associated with the disease. After Dr. Bright came many others, who have treated of the disease according to their different observations, and under many and widely differing classifications, so that to-day the student is lost in a maze of terms and definitions descriptive of each writer's fancy or his particular classification. We know the function of the kidney, and many, if not all, the pathological conditions that occur in inflammation of that organ, as well as the results upon the economy of altered functions. Then may we well study the etiology and diagnosis of the disease.

Nephritis is an inflammation of the kidney; usually begins as an acute affection, and may become chronic; is either interstitial or parenchymatous, and may be characterized by suppuration, even to the point of becoming a surgical disease. As to frequency, I was constrained to write this paper because of the prevalence of the disease during the winter and spring just passed. Case after case came under my observation, some proving fatal, some amenable to treatment. The increased frequency of the disease led me to inquire more minutely into the cause. Such things are not to be explained away by saying that we are growing weaker and wiser, but must be carefully studied.

Now, I sought an explanation in the fact that the seasons are very much out of joint. The past winter was characterized by sudden and decided changes in the temperature, which vicissitudes, coupled with high barometric pressure, are very active agents in producing internal congestion and disturbing the eliminating function of the skin, thus throwing an increased amount of work upon a congested kidney; but, since similar atmospheric conditions have prevailed before without the attending prevalence of nephritis, the explanation does not explain. It will be remembered that the epidemic of cerebro-spinal meningitis of 1899 accompanied an epidemic of la grippe, and that during a similar epidemic during the past winter there were noted an unusual number of cases of catarrhal gastritis and enteritis, even to dysentery. Again, in 1899, many cases of spinal pain, with anorexia, nausea, constipation, great prostration, with insomnia and mental dullness, accompanied the epidemic of in-

fluenza; then there must be some kinship between these conditions as to etiology. Now, if the grippe may and does exert so profound an influence upon the system, and expends its violence upon the respiratory tract, the digestive tract, the nervous system, the pleura, the heart, with its lining and investing membranes and the meninges, why not exert similar influence upon the urinary tract? Such, in my opinion, is the etiology of the cases that came under my observation. There is nothing in the structure of the kidney that precludes the probability of its invasion by the bacillus of Pfeiffer, and since it attacks and gives rise to disease in so many of the tissues of the body, it is easy to conclude that it may attack the kidney. The epidemic of grippe in 1899 was accompanied by one of meningitis. The epidemic of 1900 was attended by one of catarrh of the gastro-enteric canal and of the urinary tract. Now some cause must be brought forward to account for this increased frequency of nephritis, and I am fully prepared to believe that it was simply grippe in the kidney.

Then, one may without show of partiality say that nephritis may occur in the course of any of the infectious or zymotic diseases. Search where you will, you will find syphilis invading any organ. Look for some tissue that may not be attacked by tuberculosis, and you look in vain. Examine any organ in the body, and you will find there before you the Eberth bacillus in typhoid fever. The place has yet to be discovered that may not fall a prey to the blighting action of the pyogenic germ. Then, why may not Pfeiffer's bacillus make excursions into any part of the body? Many things may act as an exciting cause of nephritis, and many conditions and influences may pave the way for the etiologic agent. But I believe that the frequent occurrence of the disease during this winter and spring was simply grippe expending itself upon the kidneys. In such cases I would not say that the nephritis had complicated an attack of influenza; neither would I say that any inflammatory condition was a complication of an infectious disease—rather a part of the disease—a primary and not a secondary condition; or, in other words, a part of the disease due to the action of the same agent that produced the general infection.

Pneumonia during the course of enteric fever is due to the action of the Eberth bacillus in the lung; the same may be said of hepatitis, or splenitis, or cerebritis, or nephritis. Hepatic abscess during the course of puerperal infection is not a complication, but a part of the infection. Epididymitis during gonorrhea is due to the propagation of the gonococcus to the epididymis: hence a part of the attack. The same infecting germ is found to be the cause of gonorrheal rheumatism. No, I won't say "rheumatism," which is a misnomer, but rather gonorrheal arthritis, and endocarditis, so that dissemination of the infecting agent, through the various channels to different parts of the body, sets up that specific disease in the various organs and parts.

Of course, there are toxemias, or cases of auto-poisoning, that may and do disturb the economy very often, and very seriously, but all active inflamma-

tion of any organ during the course of a bacterial disease is most likely due to the action of the infecting bacterium. Nephritis, from whatever cause, may prove early fatal, or may subside entirely, or may fade off into a sub-acute or chronic condition; and, to be intelligently managed, must be diagnosed. If a patient complains of malaise, headache, nausea or vomiting, chilliness, backache, and in children perhaps convulsions, fever from a trace to 102-104, you know that he has an acute toxic or an acute infectious disease. Now, what is it? The fever may be moderate, pain not severe, and there may or may not be pain over the kidney; hence the diagnosis is by no means easy, and the patient may get well without a diagnosis. With continued illness or increasing severity of symptoms you are led to examine the urine, finding a scant, smoky, or reddish urine, of high specific gravity, containing albumin, and tube cast with perhaps red and white blood cells, and in some cases pus cells, you are sure of your diagnosis. But it should not be forgotten that there may be albuminuria, without nephritis, and *vice versa*. There may be nephritis without hematuria or hemaglobinuria, but in severe cases this condition is apt to be present; and there may, or may not, be present edema of face, eyelids, or the extremities. In many cases the diagnosis may be made by symptomatology, but in many others only urinary analysis will reveal the trouble. Always get amount of urine, color, and specific gravity, and look for albumin, and, what is of absolute diagnostic value, tube casts. These, with edema, anemia, high arterial tension, with evidences of approaching uremia, make your diagnosis complete.

DISCUSSION ON THE PAPERS OF DRS. WILLIAMS, CECIL, AND HUMPHREY.

Dr. Louis Frank, Louisville: There are a few phases which impressed me during the reading of the papers which are of interest to all of us, and particularly those of us who are doing work along surgical lines. I will refer to the last paper first. Dr. Humphrey made two or three statements with which I disagree, and desire to state my position regarding them. In the kidney we have a different structure, and the action of micro-organisms upon them, and their physiology and function are entirely different from the lungs, meninges, liver, and many other organs. The Doctor referred to the action of the bacillus of Pfeiffer, the micro-organism of la grippe, as the cause of many of the cases of nephritis, and compares the action of this micro-organism to the action of other micro-organisms; as, for instance, that which produces typhoid fever, or pneumonia, upon the brain, the liver, the spleen, etc. I believe that is a false interpretation. I do not mean to convey the idea that the micro-organisms are not in themselves the cause of the disturbance, but the micro-organisms, acting upon the kidneys, produce direct changes in the structures themselves, and this in the kidney would not be followed by nephritis without recovery. Such cases would get well, apparently. But in cases of suppuration of the kidney, of abscess formation in this organ, or the development of an embolic or pyemic process, we may say that any other organism may occur or play a part in the disturbance of the same organ. The changes which take place in the parenchyma of the organ are due to the elimination of products through the epithelial cells, and in this way the disease is produced.

As to the importance of examining the urine (and this bears upon the paper of Dr. Cecil), which I think is the keynote of the whole discussion regarding the subject of kidney disease, we are concerned with the action of the kidneys in eliminating poisonous products, and it is not whether or not we have simply a crippled organ, but the question is whether this crippled kidney or other organ is capable of performing its function. That, I take it, is the real essence of the whole discussion. A man may have marked cardiac disease, and yet may not suffer materially from the consequences of it at all. He may have mitral insufficiency, and yet the heart goes on and functionates to all intents and purposes. Just so in kidney disease. We will encounter many women and men who do not suffer from this affection. The trouble is not in the kidneys themselves, but largely in the eliminative powers and qualities of the kidneys. This brings up the point of careful examination of the urine. I do not think the routine examination of the urine for albumin, tube casts, and perhaps for the discovery of blood, is really the thing that we want. This examination does not indicate very much. If a patient has a cardiac murmur, you want to know whether the heart is doing its work properly, particularly with reference to the apex beat. In the matter of the kidney, it is elimination that we want. We should examine for poisonous products, and estimate the amount of solids which are being eliminated by the kidneys.

In the surgical work we sometimes examine the kidneys and find no albumin. The specific gravity may have been all right, and yet the patients die from suppression of urine, or they die from the direct effect upon the kidneys themselves, not even with absence of symptoms which have been described, simply because the kidneys are not performing their eliminative functions properly. There may not have been any albumin present. All of us can make an examination for albumin, but this does not indicate anything. Albumin is found in the urine without there being disease of the kidneys, and I would not attach any more importance to the discovery of albumin in the urine or tube casts, except as a guide, than I would to a cardiac murmur as being an expression in my opinion of disease of the heart.

DR. J. A. HUMPHREY, Henderson: Just a word or two in regard to the remarks of Dr. Frank on my paper. I am not at all surprised that some one should object to my way of thinking, but the discussion has not convinced me that the idea advanced in the paper is not well founded. As has been stated by Dr. Frank, the structure of the kidney is different from that of the liver, lung, spleen, meninges, etc. That does not argue, since the bacillus of Pfeiffer is capable of producing disease in organs differently constructed, that the kidney should be an exception to the general rule; and in casting about for a cause of the frequency of the disease, as we find it to-day, I have mentioned a possible cause. The way, however, is still open for suggestions as to what the cause is, and the frequency of attacks of la grippe, coupled with the increasing frequency of nephritis, has led me to believe that there must be some connection between the two affections.

PAPERS.

I. WHAT IS THE SIGNIFICANCE OF A FEBRILE PUERPERIUM?

HENRY E. TULEY, A.B., M.D.,

LOUISVILLE, KY.

Before the query propounded in the title of this paper can be answered, one must first consider what is the normal temperature curve in a post-partum woman.

The authorities differ greatly upon this point. One writer states unequivocally that a temperature during the puerperium above 99 is abnormal, another that a range between 98.6 and 100.4 is compatible with a normal condition.

During the service of the writer at Sloane Maternity Hospital in an observation of 222 cases the maximum temperature in a puerperal woman, who was considered normal in every way, was 100 F. In every instance in which the temperature rose above this point a cause was found which explained the rise and the patient's condition was considered abnormal. At the Louisville City Hospital during the past year, since accurate records have been kept in all obstetrical cases, the average temperature in 28 normal cases was below 99.8 F.

In the writer's private practice it has been his custom, when the presence of a competent and intelligent nurse made this possible, to require accurate records of temperature and pulse both morning and evening, otherwise to keep a twice daily record for three days and an evening record for the next four days from personal observation. All cases with a register above 100 F. are considered abnormal.

Immediately after or very shortly after the completion of the third stage of labor there is, almost without exception, a chill, more or less severe, and a rise in temperature from one to four degrees (101 to 104). This rise is entirely physiological and has been variously explained. It is probably due to the resorption of fibrin resultant from rapid tissue waste incident to the great muscular effort of the labor. The rise is complete at the end of the first twelve hours post-partum, and by the end of twenty-four hours has generally reached the normal, below 100 F. The occurrence of this chill and temperature rise indicates how susceptible a parturient woman is to variations in temperature and should constitute a warning that to apparently trivial causes the temperature rise may be due.

Therefore, in a post-partum woman, a transient rise in temperature, which does not go above 100, and lasts but a few hours, should be considered compatible with the normal condition, and if the thermometer range exceeds this her condition should be considered abnormal.

Upon the occurrence of fever our diagnosis is greatly assisted by a consideration of other symptoms presented—pulse; the lochia, its quantity, color and odor; the facial expression; the state of involution and condition of the uterus; the state of the bladder; the condition of the breasts and nipples and the occurrence of after pains. The following diseased states may be mentioned as responsible for a rise in temperature of a lying-in woman, named in the order of their frequency and importance: Sepsis, sapremia and septicemia; auto-intoxication from the bowel; malaria; mastitis; typhoid fever; epidemic grippe or influenza; tuberculosis; the exanthemata; eclampsia; erysipelas; pneumonia; rheumatism; gonorrhea. In this connection it will be of interest to note the diagnoses in the cases at Sloane Maternity Hospital, referred to above, in which there was a rise in temperature: Cystitis, 2; dysentery colitis, 1; mastitis, without suppuration, 1; salpingitis, 2; malaria, 1; peritonitis, 1; sepsis, 5. At the City Hospital in fifteen cases in which there was a rise in temperature the following diagnoses were made: Auto-intoxication from the bowel, 3; mild sepsis, 9, and malaria, 2.

There is no such condition as milk fever; the advent of the milk, whether it appears gradually or with a rush, as is often seen in multipara with large breasts containing a quantity of gland tissue, is not accompanied by a rise in temperature. Should a rise above 100 F. be found there is present some other condition which is responsible. If there is a localized tenderness, pain and heat following an engorgement or "cake" in the breast, so-called, a mastitis is imminent.

No condition in the puerperium should cause so much concern as a rise in temperature. By far the most common cause is an infection, not an auto-infection, so-called, but an infection for which someone beside the patient is responsible. So prone is a parturient woman to develop sepsis, because of the natural conditions present, the large absorbing surface opened up by the dilatation of the passages, the excellent culture media found in the lochia, the body heat and the easy introduction of pathogenic organisms—that when a temperature does develop this should be one's first thought, and should be eliminated from the possible causes by a process of exclusion. Sepsis is a complication greatly to be regretted, and because of its liability to occur we should use every diligence to prevent it.

It is not within the scope of these desultory remarks to deal with puerperal sepsis, but rather with the significance of a febrile puerperium, if sepsis can be ruled out as a possible causative factor. A consideration of puerperal sepsis itself would demand a thesis of too great length to be read within the allotted time, then, too, we are to listen to a most excellent paper upon this subject by the next essayist upon the program.

Auto-intoxication from the bowel is a very frequent cause of fever in the puerperium. Intestinal auto-intoxication is a broad subject, and one of great interest. Following a normal, and especially a prolonged labor, there is a

semi-paresis of the intestinal tract. Nature's effort to accomplish a reposition of the abdominal organs to their normal state is not complete until involution of the uterus has been accomplished. There is a lack of abdominal support, a distension of the intestines results from fermentation therein, and a resorption is made possible and occurs with frequency. The first evidence of this condition is generally a headache, more or less severe; coated tongue; bad taste in the mouth; tendency to collection of sordes; constipation, or perhaps the passage of a few scybalae; intestinal distension and meteorism; a temperature of 101 to 103, with a proportionately rapid pulse. There is generally no chill as a forerunner of the temperature.

CASE 1. Mrs. Y., III Gravida, normal labor lasting three hours; uneventful puerperium until the seventh day; appetite, which during pregnancy had been capricious and fitful, was insatiable from the third day post-partum. A too generous diet resulted in an overloading of the gastro-intestinal tract, and the condition just described, with a temperature of 103.6 F. Starvation and a brisk saline purgation resulted, as soon as free evacuations were obtained, in an entire subsidence of the symptoms and an uneventful convalescence.

Malaria is unfortunately used far too often as a diagnostic cloak to hide the true condition of sepsis. That it may and does occur is beyond doubt. In fact, malaria, which may perhaps have been latent, may be lighted up by the ordeal of a normal labor, or, as has been noticed, when a pregnant woman, living upon a street which has been recently torn up for repaving, is confined, and develops during the first few days afterward in an attack of malaria—chill, fever and sweat. The diagnosis in such a case is plain, and is

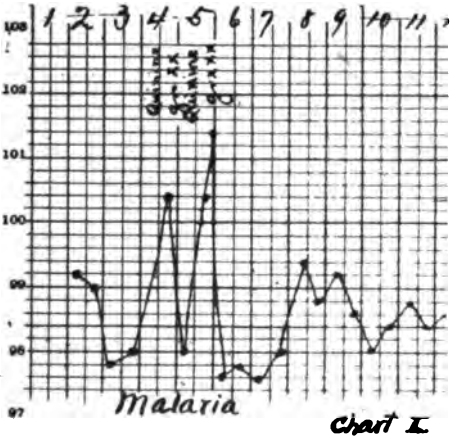
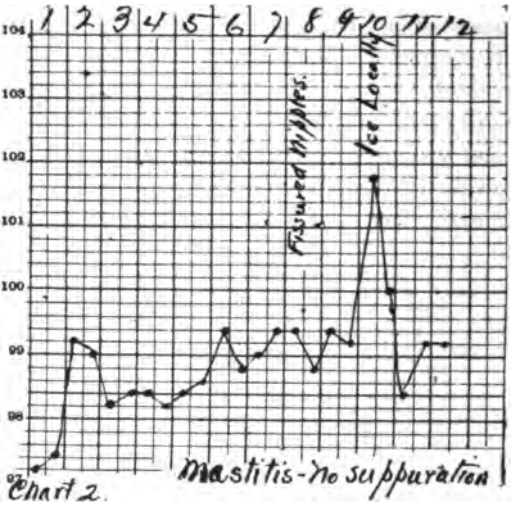


Chart I.

further proved by its response to quinine. Here, however, we are apt to err by waiting to administer quinine, instead of making first a microscopic examination of the blood to establish a diagnosis. In fact, one should not make

a diagnosis of malaria in the puerperal period without taking this precaution, an easy diagnostic aid and absolutely reliable. Bonfils, quoted by Hirst, says malarial fever after child-birth predisposes to hemorrhages; a suppression of the lacteal secretion during the exacerbation of the fever, and mentions the periodicity which the fever assumes. Other authorities differ as to the regularity in the occurrence of the fever, and the writer concurs in this, that "the fever is usually continuous, so soon as the free administration of quinine is begun and the patient brought under its influence, the fever becomes intermittent and finally disappears." (Hirst.) An attack of malaria may occur at any time during pregnancy, or during the lying-in period. The likelihood of the chill being the onset of an attack of malaria is greater if it occurs late in the puerperium, as sepsis is unusual after the first week.

Mastitis, eventuating in an abscess or without suppuration, is an extremely painful condition, and because of the local symptoms a mistake in diagnosis is hardly possible when the occurrence of fever is noted. An illustrative case involving such erroneous diagnosis was brought to the notice of the writer upon being consulted some weeks after in regard to artificial food



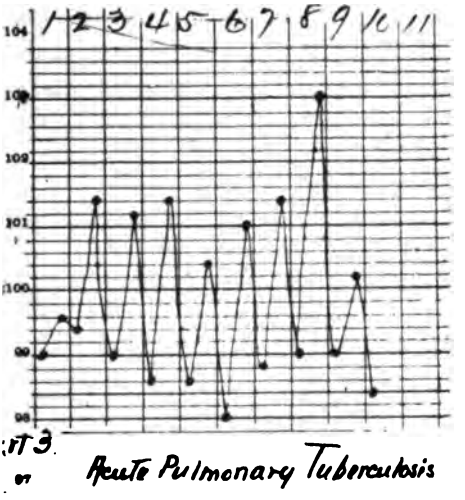
for the infant. The mother during the first and second week post-partum was subjected twice to a curettage of the uterus for a supposed local infection, when a submammary abscess was the cause of the temperature, chills, sweats, etc., all of which disappeared upon recognition of the condition several days after the second curettment, and when incision and drainage of the breast had been made.

Typhoid fever is a slow process and never develops post-partum without some evidence of its existence before labor. Sepsis is much like typhoid in many of its phases, and one might be misled. Without the spots, tongue,

Widal and diazo reactions in addition to the fever, one would not be justified in making a diagnosis of typhoid in the puerperium.

Epidemic grippe or *influenza* may attack a post-partum woman and give a sharp rise in the temperature. Case 2 illustrates this complication. Fourteen hours post-partum the patient, a primipara, complained of severe aching in all parts of the body, especially in the back. For a time this was believed to be due to the muscular efforts of a rather prolonged labor. Closer examination revealed a rapid pulse and a temperature of 103.6 F. There was a slight hacking cough, but the chest was negative. No abdominal or pelvic abnormalities were detected. Influenza was prevalent at this time, and it was believed to be the cause of disturbance in this case. Purgation with the administration of quinine and phenacetine resulted in complete relief in forty-eight hours; a perfectly normal convalescence, and no disturbance of lactation. Our esteemed President will recall the writer's consulting with him in regard to this case at the time, with the comforting assurance that he had under observation then an exactly similar case.

Tuberculosis. Pregnancy occurring in a patient who is afflicted with pulmonary tuberculosis may have an entire amelioration of symptoms upon the beginning of the pregnancy. Her cough, profuse expectoration, sweats, loss in weight cease, she eats and sleeps well, takes on flesh, and apparently



"takes a new lease on life." Her improvement is but transitory, and lasts only during her pregnancy. Immediately, like a flash, after the completion of labor, there is a lighting up of her former condition, night sweats begin, followed by a rise in temperature, cough, expectoration, hemorrhages perhaps, a loss of appetite and weight, and generally a speedy dissolution.

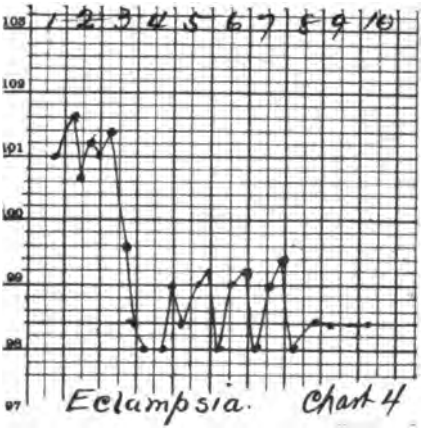
Case 3, a primipara, had phthisis, with a small cavity in the right apex, loss of flesh, sweats, etc., which improved after conception. During preg-

nancy the patient was in good condition, coughed less, ate well, and was in good flesh. Labor was precipitate and child was still-born. Temperature the first day was 99.6 F., the maximum temperature the second day 101.4 F., reaching this point once each day until the eighth, when it was 103 F. There was some fever during the whole puerperium. A vaginal douche was given for slight lochial odor on the fourth day, and several clots were washed away, but without effect on the temperature. There was some tenderness over the right iliac region, but pelvic examination showed everything normal. Signs of active trouble were found in the apices of both lungs. Emaciation was steady from this time; four months later her weight was 83 pounds, and death followed nine months after the birth of her child.

Of the exanthemata *scarlet fever* most frequently occurs as a complication of the puerperal state. It must be borne in mind that a scarlatinaform rash may occur in the course of a septicemia, and *vice versa* there may be pelvic symptoms follow in the train of a scarlet fever which resembles very much those in sepsis. It is conceded that "the genitalia is the site of entrance of the *materies morbi.*" When it is recalled that the vast majority of deliveries are conducted by the general practitioner, it is surprising that scarlet fever does not occur with more frequency. The following, relative to the peculiarities of scarlet fever in the puerperium, is taken from Hirst: "It almost always appears in the first three days after labor; the throat complications are slight; the eruption appears quickly, is rapidly diffused over the body, and is apt to assume a dark-red color. It exercises an unfavorable influence over the puerperal state; the milk secretion is lessened; pelvic inflammation occurs in a large proportion of cases; diarrhea may develop, and is an unfavorable sign."

The chill, fever, pain, cough, and expectoration should render a diagnosis of *pneumonia* easy. It is much more liable to occur during pregnancy than during the puerperium.

Eclampsia. Winckel was the first to refer to the fever accompanying



eclampsia, in 1865. Should the convulsions precede labor by a few hours or occur post-partum, the temperature may run quite high with each convulsion.

CASE 4. Mrs. R., II. Gravida, about eight months pregnant; definite time of conception not known, as it occurred during lactation. Convulsions before the onset of labor; artificial delivery; podalic version; living child, recovery. Temperature second day, 101.6 F.; third day, 101.4; ranging between 99 and 100 for the next four days.

The close relationship between *erysipelas* and puerperal fever is generally conceded, the near resemblance of the streptococcus erysipelatis and the streptococcus pyogenes probably explaining this. It also explains why, in an infection with the erysipelas coccus, where the site of entrance is the genitalia, evidences of rash are seen so seldom upon the skin. The course and symptoms of an erysipelas, in which the site of entrance of the contagium is the skin, is in no wise different from an attack under other circumstances.

We would emphasize the fact that fever in the puerperium should always be a matter of concern; its causation is not always clear, and the question should be weighed most carefully and deliberately. If we approach these cases with the idea of sepsis as the chief possible cause clearly before us, we shall not err in making a comfortable diagnosis of one of the conditions enumerated, which will involve great discomfort to the patient.

II. PUERPERAL FEVER, WITH REPORT OF SEVEN CASES.

I. T. TOWNES, M. D.,

BEECH GROVE, KY.

From time immemorial the obstetrician has had to deal with the dread disease, child-bed fever. Among ancient physicians various theories were advanced as to the cause of this fearful malady. At present it is generally conceded that the cause is sepsis from without, conveyed in some manner to the lying-in patient.

We encounter different degrees of puerperal sepsis, from the mild, so-called milk fever, to the gangrenous limb; from infectious phlebitis and multiple abscesses to pyemic infection.

It is not my intention to attempt to write a learned disquisition on the theory of child-bed fever, nor to advance any new and specific treatment for the same: I will leave that for others more competent; but I simply desire to report briefly seven cases coming under my observation, all occurring in so short a space of time as to properly be designated as an epidemic of child-bed fever. Three of these cases occurred in my own practice, two in the care of

brother practitioners, and two in the hands of midwives. Three died, and the other four made good recoveries. Two cases occurred in the fall and five in the early winter. We failed to ferret out any particular cause for this endemic of septic fever in these lying-in women.

The surroundings were no more unhygienic than common in this locality. Sometimes epidemics come in cycles, without any visible cause, or at least where the cause is extremely difficult to ascertain. To be sure, there is always a cause, but we cannot deny that at times it is next to impossible to discover the source of infection in each individual case. In these cases it cannot be charged that the physician or attendants carried the infection, because, as stated in the outset, they were attended by different physicians and nurses and two midwives.

The first case was a primipara, 23 years of age, who was attacked suddenly and violently about 10 o'clock at night with a convulsion. Being the nearest physician, I was hastily summoned to her bedside. When I reached her couch the convulsion had passed away, and she was quiet, but not fully in her right mind. Upon inquiry I learned that she was in the eighth month of pregnancy, and had suffered much from severe headaches. I noticed that her face, hands and feet were swollen, the face having a white, waxy appearance.

By the time these observations were made another convulsion more severe than the first seized her. In all she had eight hard convulsions, which were controlled in the main by morphine. She was delivered as soon as possible without the aid of instruments, and after an extremely easy labor, of a living child, which died a few months later. The urine was heavily loaded with albumin. All went well for perhaps three days, when she had a chill, followed by high fever, which was the beginning of a protracted fever. The lochia dried up, and the womb became very tender, and remained so for some time. The abdomen was not tender to any notable degree. The soreness, elicited by pressure, was confined principally to the pelvic region. At no time was uterine douche made, but copious antiseptic hot vaginal douching was methodically and thoroughly carried on from the beginning. Small doses of calomel and ipecac were administered throughout the illness, and always with decided benefit. Opiates in some form were given when pain required their use. Bromides and chloral hydrate were administered to produce sleep; when these failed morphine was used with sleep-producing effect; quinine in tonic doses was given during her illness.

Good, nutritious diet was given her whenever she could be induced to take it, although she had no desire to eat. About the fifth week the metritis and parametritis subsided very much, and phlegemasia alba dolens developed in the left limb. Two weeks later the right limb became affected. These limbs were wrapped carefully in flannel and bathed freely but gently with compound soap liniment, laudanum and chloroform regularly.

When the limbs became affected rigors set in. These cold, shivering at-

tacks, accompanied with paleness, were followed by very high fever and flushed cheeks and profuse perspiration. These attacks seemed to be paroxysmal at times, and were controlled somewhat by large doses of quinine, administered prior to the expected paroxyms.

At times they were warded off by large doses of tr. capsici in hot water, and covering her with warm blankets. She was now taking iron, quinine and phosphate of strychnia. In about two months from the beginning all the symptoms disappeared, and she slowly returned to her usual health.

The second case occurred a few weeks later in a primipara, aged 18 years, and was attended by a midwife. On the third or fourth day she had a chill, followed by fever, which continued. I was called, and upon examination found a tear of the fourchette and tender uterus, bad odor and foul discharge. There was a tenderness on the right side of uterus, which went on to suppuration. Same treatment as in the first case in the main. Iodoform suppositories were used per vaginam. She recovered in three weeks. In this case, as in all the others, antipyretics were used cautiously and occasionally. This patient was fed on what we term light, nutritious diet, and eventually made a good recovery, but the return to health was slow and somewhat unsatisfactory.

The third case occurred a few weeks later, and was attended by myself. It was her third confinement. The labor was somewhat tedious, but perfectly natural in all particulars, so far as I was able to see. She was a tubercular and rheumatic subject. On the third day she had a chill, and developed what appeared to be an attack of rheumatism in the wrist and elbow of one arm, which soon spread to the joints of all the limbs, and also the spine. There was great pain and soreness in the region of uterus, suppressed lochia, and large swelling around womb on both sides. The treatment was varied to meet the indications. Hot vaginal injections, and anodyne applications were made to swollen and painful parts. Stimulants were needed and used throughout, along with supportive treatment. There was great anterior curvature of the spine and complete inability to move any part of her body, except head, muscles of face and tongue. Pneumonia developed and was treated successfully. Tachycardia developed, and an excessive flow of saliva came on. These symptoms appeared to be due to an attack of myelitis. Multiple abscesses developed, some on surface of the body and some internally; one in each middle ear, one in the right lung, and some pus came from the pelvic cavity. When she died, four months later, there were twenty abscesses visible. The spine was so much curved that she could not lie on her back. She was entirely helpless. The case to me was a most interesting one, and was a most horrible sight to behold.

The treatment was supportive and symptomatic. The abscesses were treated antiseptically. I would like to ask if these abscesses were pyemic or due to the myelitis, and if the myelitis was due to septic infection.

The next case I wish to report is the only one where it was possible for me to convey the infection. About two weeks after I attended this confinement I attended this lady, the fourth case in the series, in her first labor. She was 18 years of age, and had a long, tedious confinement. The fetal head made considerable pressure on soft parts for some time. She was finally delivered, without instruments, and did well, seemingly, for twenty-four hours, when I learned she had fever and could not pass her urine. There was no chill, but fever was continuous and high. The catheter was used, and a digital examination showed a swelling around region of bladder, between uterus and bladder, with such pressure on urethra that urine could not pass naturally. An abscess formed and discharged per vaginam. Used catheter for eighteen days, when she began to pass water naturally.

The treatment was along the same line as the others, varied to suit the indications. Hot vaginal injections, bowels kept regular with calomel and ipecac and salts; occasionally a rectal injection; opiates when indicated; nutritious feeding.

I think this case was tubercular also. She was ill for one year before her marriage with gastro-intestinal catarrh. A number of her people have died of phthisis pulmonalis; her mother having died with chronic bowel and lung trouble, would indicate tubercular tendency. This case made a good recovery in four weeks. Her babe died of cerebral meningitis, exactly at two months of age.

The fifth case occurred in the practice of a brother practitioner, about six miles from my place, and had developed phlegmasia in both limbs, when I was called in. The treatment was same as first case, with complete recovery.

The sixth case occurred under a midwife's care, about four miles from me, across Green river, in an adjoining county. Puerperal fever developed, when another physician was called. He then called me, and we found general peritonitis, the abdomen being greatly distended. She died too soon to be influenced in the least by treatment.

The seventh case occurred at Livermore, twenty-five miles distant, in the hands of a physician. All went well for a few days, when fever developed, running usual course. Infectious phlebitis, followed by gangrene of left limb, closed the scene. I was called in to amputate, but saw no hope of successful issue on account of general infection. As she was a mass of pus, the operation was not done.

It seems strange that six cases, under the existing circumstances, should have occurred in the same locality at the same time. The existing circumstances were these, viz: That these cases were attended by different people, and no chance of infection from one to another, except one case referred to in the body of this article, and that chance was strongly guarded against.

Granting that the source of infection is always from without, and, barring septic conditions of the internal and external genitalia of the lying-in women, theoretically speaking, we should never have puerperal septicemia.

By a strict and rigid adherence to all the minutia of asepsis in all persons concerned throughout confinement and the puerperium there would be no chance of infection from without, consequently no child-bed fever.

There is much more satisfaction in the prevention of puerperal sepsis than in the treatment of the same. Permit the thief or robber to once enter the residence, and he immediately bcomes a dangerous foe, and most difficult to manage; keep him barred out and there is no trouble. Nowhere in the annals of medicine is the truth of the old adage, "An ounce of prevention is worth a pound of cure," more exemplified than in this most dangerous and very fatal disease attacking lying-in women.

Some of the rules laid down by Dr. Oliver Wendell Holmes governing the practice of the obstetrician cannot be improved upon, and it would be well even in this advanced age for practitioners to observe them. Notwithstanding every precaution may be taken, the stubborn fact remains the same. that puerperal fever does occur now and then, and must be combated energetically to be successful. Each case is a law unto itself, and must be handled accordingly. There are some general measures applicable to all cases.

In a brief resume of the treatment given in the cases reported in this article, and in all cases, I would say the indications are to remove all the sepsis possible by antiseptic douches, both uterine and vaginal, curetting when necessary, combat the septic influences already in the system by the use of the proper remedies, such as quinine, mercury, alcohol, etc., relieve pain, reduce temperature, and procure rest by the careful administration of anodynes, antipyretics and hypnotics, support the patient, and sutain the heart by using good food, properly prepared, and given at stated intervals, and the administration of cardiac stimulants, the best of which is strychnine, and to meet the complications as they arise.

I desire to say, in closing, that the obstetrician, by a religious observance of the rules relating to asepsis, and the instructions of his clientele in the same, and in the laws of hygiene, may prevent puerperal infection in all but a minimum number of cases, and save these mothers, thereby subserving the interests of mankind, for "the hand that rocks the cradle rules the world."

DISCUSSION ON THE PAPERS OF DRS. TULEY AND TOWNES.

Dr. R. C. McChord, Lebanon: This is a subject of great importance. The paper of Dr. Tuley is timely. It is now generally believed and accepted that the majority of cases of puerperal fever are due to sepsis. I have always regarded puerperal fever as reprehensible in almost every instance. I have learned from experience that puerperal sepsis is due to the attending physician or to the nurse. The modern teaching of asepsis has brought us to understand this subject more thoroughly and clearly than we understood it heretofore. Puerperal sepsis is due largely to carelessness on the part of practitioners and midwives, and it is a shame to the medical profession that such practice exists to-day. Those of us who have had to deal with these cases from a gynecological

point of view know how frequently these cases occur, and how women eke out miserable existences for years as the result of carelessness on the part of some practitioner. I regard the practice of midwifery from that point of view as of very great importance. There is too much carelessness shown when the practitioner is first called to see such a case. The woman should be visited and carefully inspected to see if there is anything wrong, so as to be prepared for labor. The patient should be instructed as to the proper management of herself before confinement. She should be instructed as to the necessity of thorough bathing and cleanliness before the time of confinement. This is a part of the practitioner's business. It is what he is employed for, and if these cases were attended to promptly and thoroughly we would hear very little of puerperal sepsis, and more particularly if the practitioner did his duty after confinement.

In attending to cases of confinement, I believe the practice of making frequent examinations is wrong. I believe the practitioner should be just as careful about making an examination in a case of confinement as he is in handling or treating a wound. His hands should be thoroughly disinfected; he should conduct his examination in a thoroughly aseptic manner; he should never make an examination without first having his hands disinfected, and the less frequently he makes examinations the better. I say there is too much carelessness. It is not simply a man's place to sit by and see a normal case of labor terminate, tie a cord, leave the house and the woman to the tender mercies of some filthy midwife. I believe his duty just begins, so far as the condition of the woman is concerned. It is his place to see if the woman has not the proper nurse; he should attend to the matter himself. If the woman is properly attended to before he leaves the house a great deal of trouble will be prevented.

In regard to the use of the syringe after delivery, as a matter of routine, it has been my custom to always use it. With an antiseptic or sterile solution I flush the vaginal canal as a matter of precaution. I believe it does good and no harm. A hot sterile or antiseptic solution will wash away the clots, and if perchance there should be some infection there it will do away with that. The woman is made more comfortable, the uterus will contract to its proper condition, and we have the assurance that we start with a sterile vagina.

As to the odor of the lochial discharge, I believe there should be no more odor from this discharge than there should be from a wound, if the case is managed properly. I believe it is just as necessary to insert gauze over the genital organs and keep them intact, and not allow the discharge to come in contact with the air, as it is to do so in the case of a wound.

Another point is this: It is the duty of the physician to examine his patient to see that there is no solution of continuity of the part. If there is a tear of the perineum it should be repaired at once, and by so doing a great deal of future trouble will be saved.

DR. WALKER B. GOSSETT, Louisville: I was very glad to hear Dr. McChord say that puerperal fever is frequently caused by the physician or nurse, and not by the patient, and that certain organisms have been introduced into the generative tract by the physician. I will not speak of the different fevers that we encounter during the puerperium, but will refer to what is known as puerperal fever. This is a subject that has caused a great deal of discussion and difference of opinion among physicians. The term puerperal fever was used first by Strauss in 1716. I believe it should be dropped. It is not a good term

to use. It does not indicate to us the nature of the trouble that we have to deal with. Let us substitute for it the term puerperal infection. It is an infection—not a fever. Puerperal infection is a wound infection. It is due to the absorption of certain organisms or their toxins, that have been introduced from the outside into the generative tract, generally during or immediately following labor.

Puerperal infection should be classified under three heads: First, sapremia, or toxemia, or a putrid infection, or contamination; second, septicemia, a true septic condition; third, pyemia, also a true septic condition.

Sapremia, toxemia, or putrid infection is due to the decomposition of retained portions of the placenta, membranes, or of blood clots. The affection is due to the absorption into the circulation of toxins or the chemical poisons of the organisms of putrefaction. The toxins or poisons, and not the organisms themselves, are absorbed into the circulation. Septicemia is due to the absorption into the circulation and the tissues of certain pathogenic organisms, or their toxins or poisons, or both the organisms and poisons. Pyemia is a condition due to the absorption into the circulation of pus or pus-forming organisms, pyogenic organisms, or both, either the pus, the toxins, or the germs themselves.

I do not believe in the so-called puerperal auto-infection. Bacteriologists tell us that we will not find pathogenic organisms within the healthy uterus or in the normal vaginal secretions. Let us suppose that we have the case of a woman who has had gonorrhea; she becomes pregnant; following labor she has septic infection, due to the presence of the gonococcus. Would you call that a puerperal auto-infection? Certainly not. She has had an infection due to the presence of this pathogenic organism, which was introduced before impregnation, but this organism was introduced first from without.

In connection with the diagnosis, I wish to bring out one fact. First, I agree with Dr. Tuley, that whenever the fever is over 100 degrees there is some trouble.

This mistake is often made: The physician is called to see a woman, who two or three days after labor has a rise of temperature, and in entering the room the physician asks the nurse probably if there is any foul-smelling discharge from the vagina. She will say that there is no odor. On account of this remark he may not make a vaginal examination, a thing which he should do. Why? Because we may have a true septic condition, a bad case of septicemia, caused by the streptococcus or staphylococcus, and you have a very slight discharge, with possibly very little or no odor. But if you have sapremia or putrid infection, you will be sure to have an abundant discharge which is foul-smelling.

As to the treatment of these cases, prophylactic treatment is the best. We should try to guard against the development of this condition. When a patient is about to be in labor she should be placed in a bath-tub and given a good scrubbing. The vulva and surrounding parts should be washed with green soap and rinsed with a bichloride solution of 1-1000.

I was a little surprised to hear Dr. McChord advise the use of the post-partum douche. You should not use the ante-partum douche unless you have some special indications for its use; and if you have been aseptic, as you should be, you should not use the post-partum douche, because there is danger attending its use. The physician himself is liable to infect the patient. The natural, normal secretions of the vagina do not contain organisms. It is an

antiseptic secretion, and the liquor amnii is an antiseptic. I have always made it a rule, after the expulsion of the placenta, to give a drachm of the fluid extract of ergot in every case of labor. Ergot will do no harm, but it will cause tonic contraction of the uterus; it will close up the mouths of the blood vessels, expel all blood clots, etc.

Dr. Frank L. Lapsley, Paris: The cause of puerperal fever is of great importance to the general practitioner, and I have been much interested in the papers that have been read on this subject. Aside from the condition occurring during the puerperal state, giving rise to fever, and aside from true sepsis, it has been my observation that there is a so-called fever which, in my opinion, is the result of an intoxication arising from the intestines. I have noticed that in the course of two or three days, if these women are allowed to go on without attending to their bowels, a slight elevation of temperature, ranging from 100 degrees to 101 1-2 degrees. After opening the bowels I have found that this condition rapidly disappears. So I have made it a rule in the case of every puerperal woman to keep the bowels open. I see no reason why the bowels should not be kept relaxed. If they do not move daily I give a small dose of a saline laxative. I believe that every case of true puerperal infection is due to infection from without, or to the retention of some of the secundines. In such cases it is the duty of the physician to resort to the most active measures.

I do not agree with Dr. McChord in his advocacy of the post-partum douche. I see no more reason for it than I do for the ante-partum douche, and they are certainly not indicated except in those conditions where infection has taken place from the outside.

In regard to post-partum treatment, Dr. Gossett mentioned the use of the fluid extract of ergot, which is an old practice, and is no doubt a very timely measure to resort to in many cases. The use of ergot will promote contraction of the uterus, thereby facilitating the expulsion of all clots. I believe that small tonic doses of quinine, combined with strychnia, will produce the same results, if not better results, in that these remedies will tone up and promote contraction of the uterus. I am in the habit of urging every woman to get out of bed and go to the vessel to attend to her bowels, thereby promoting the expulsion of all clots from the vaginal tract.

Dr. J. L. Atkinson, Campbellsville: There is one point in the papers that I desire to call attention to, although it may not be courteous to criticise a paper when its author is not present. I refer to the thoroughness of treatment. The essayist, in mentioning a number of cases, gave a very high mortality rate, and I am inclined to think that it was largely due to the inefficiency of treatment; that is, he did not direct his remedial measures to the seat of trouble. I believe he stated that in no case did he use the uterine douche, or in any way treat the uterine cavity. The uterine cavity is not the only source of infection, but it is frequently the source of infection, and for that reason I think his treatment was not as efficient as it might have been; and I would call especial attention to the point of thoroughly cleaning out both the vaginal and uterine canals in these infected cases. I agree with the gentlemen, that most of the fever in the puerperal state is due to sepsis.

Dr. D. G. Simmons, Adairville: I wish to say a few words with reference to the treatment in these cases. First, as to the local treatment. I am clearly of the opinion, Mr. President, that there is too much local treatment in this disease. It is a fertile field for the development of bacteria that are conveyed

to the body of the uterus through unclean instruments, and with untoward consequences. When there is evidence of the presence of some foreign matter within the uterine cavity I use the St. Cyr curette for its removal, followed by a thorough washing out of the uterus. After this I would confine my local treatment to keeping the vagina thoroughly cleansed, if there were a fetid discharge. If there was no fetid discharge, I would not disturb the parts at all.

The general treatment of this disease has been very unsatisfactory. It has been my misfortune to have had to contend with quite a number of these cases, and I am sorry to say that my success has not been as gratifying as I would like to have had it. But recently, since I have paid particular attention to the importance of stimulating the heart and the circulation, and maintaining the nervous system in proper equilibrium, I have had better results. I have done that by the use, not of small doses of quinine and strychnia, as alluded to by the gentleman on my left, but by liberal doses of those medicines. Small doses, in my opinion, are inadequate. We must have doses as large as the patient can stand. In one case I used two ounces of quinine before the woman got well. The length of time was about four weeks. I used the thirtieth of a grain of strychnia at intervals of from three to four hours, and I have given whisky or brandy and milk in liberal doses, confining the diet to those things. This is the treatment that I have used most successfully and recently exclusively. I have resorted to other treatment only as indicated by the symptoms.

III. SOME OBSTETRICAL EXPERIENCES.

CHAS. W. AITKIN, M.D.,

FLEMINGSBURG, KY.

After twenty years of continuous country practice I refer to my obstetrical records and find that I have surely been fortunate in the cases that have come under my professional care, in that there have been very few "knotty" cases to handle. Over eleven hundred cases have come under my immediate observation as attending or consulting accoucheur. Of this number only one mother died, and that from pneumonia, five days after delivery. There were fifty-seven still-born children. I claim no special good attention, but simply good fortune, in seeing, as a rule, easily managed cases. Over two hundred were forceps deliveries, forceps being used generally after the head was engaged in the inferior strait. Occasionally forceps was used in order to better protect the perineum. Fortunately no scars or accidents from forceps occurred.

One craniotomy was done where the parents would neither hear to an abdominal section or symphyseotomy. One craniotomy and decapitation was done where the fetus had been dead for over twenty-four hours. In this case there was a shoulder presentation; version was done, and the fetus delivered to the head very promptly. Numerous careful attempts were made to deliver

the head, but all were unsuccessful; decapitation was done, after which diligent efforts were made to deliver the free head in any possible position, but all were in vain, so the skull was crushed and delivered. The mother made an uninterrupted recovery.

Have had three hour-glass contractions and eleven placental adhesions. Septic infection, rather severe in character, has occurred in fourteen cases, and a mild sepsis in quite a number, where there were slight lacerations. The more marked septic conditions occurred no doubt a few times directly from the accoucheur, notwithstanding usual precautions were taken to prevent any infection. Once scarlatina was transmitted to the mother, the accoucheur having for several hours refused to see the case, but finally succumbed to the importunities of the family, and promptly transmitted the infectious disease to the mother, the child being dead when delivered. Another case had an old tubal infection prior to impregnation; this patient had an elevated temperature, a tender tube, and pain in the affected side from the time of impregnancy to the end of the third month. The unpleasant symptoms then disappeared, and the patient was apparently quite well until three days after delivery, when severe pains began in the side formerly affected, rigors followed, and slowly an abscess developed; an abdominal section was done some months after delivery, and the patient made a slow but good recovery.

I regret that I have not been able to have a complete record of *cervical* lacerations. Of perineal lacerations, over eighty required immediate repair; only one tear extended through the sphincter ani. Five cases of puerperal eclampsia are recorded; two were delivered promptly of living children; the other three were delivered of dead children, the time of delivery being respectively twenty-four, thirty-eight and forty-four hours after the convulsions were controlled.

A partial placenta previa has occurred once, but was easily managed. A central placental implantation was never met with in this record of cases. Alarming post-partum hemorrhage occurred eight times, these, too, before the days of using normal salt solutions. Twins are recorded twice; breech presentations eleven times; foot or knee presentations four; hand or shoulder six. Over 60 per cent. have been males. Ophthalmia neonatorum was met with nine times; the sight of one eye was lost. One case with a double uterus and vagina was encountered. Conception occurred in the right side, and the pregnancy and delivery were uneventful.

Now, a few words relative to the management of some of the puerperal conditions. In the septic cases an effort was always made to remove the cause; the uterus was thoroughly cleansed and frequently washed with hot borated water. In one case I note to have had intra-uterine irrigation practiced six times in a given twenty-four hours, the septic symptoms subsiding after each washing for a shorter or longer period. Have used silk, cat gut, silk worm gut and silver wire in suturing perineal tears, but have gotten better results

from the last two sutures named. In the cases of puerperal eclampsia referred to venesection was practiced in two of the cases. In addition to venesection in one case, chloral hydrate was administered in drachm doses per rectum, and in the other case, in which venesection was done, pilocarpine was used hypodermatically. In three cases pilocarpine was used alone, and after one-half grain was administered—in one-fourth grain doses, one-half hour apart—there were no further convulsions, though in one case the mind continued so clouded that six doses of pilocarpine were given within twenty-four hours after the convulsions had ceased. Post-partum hemorrhage was controlled by a modified Crede's manipulation of the uterus, making a bi-manual compression, and once, in addition to this, I packed with absorbent gauze for three hours. Ergot and morphia hypodermatically were always given. In the case of ophthalmia neonatorum, where the sight was lost, no solution of argenti nitras was used; in all the other cases a 20 per cent. solution of that drug was used with satisfactory results.

A short report now of a case of abdominal pregnancy, and I am done. I saw this patient, with the late Dr. D. D. Peck, when she was five months advanced. Dr. Peck had already diagnosed an extra-uterine pregnancy, but was opposed in this opinion by a prominent gynecologist. When I saw the case the fetal heart could be distinctly heard. The patient would not believe but that at full term she would be delivered, as she had previously borne children without complications. Quickening occurred at the usual time, and at the expected time, *with her,* for confinement, she began to suffer pains, which were of such intensity that the family physician spent the greater part of two days with the patient. Following the cessation of the severe pains the patient continued ill for over two months, and it was not until the end of the eleventh month that movement entirely ceased. The patient gradually improved in health, and for nine years she was able to attend regularly to the duties of a housewife. At this time she began to suffer with severe pains throughout the abdomen; the pains continued for two months, when a perforation occurred in the descending colon at the sigmoid flexure. The fluid largely escaped, passing off per bowel. The patient became much smaller, and was temporarily relieved, but in a few days the pains became unbearable from the pressure caused by the sharp angles of the extremities. This was ten years after conception took place. The patient now asked earnestly for an operation, and, acceeding to her desires, her attending physician, Dr. Morford, requested me to open the abdomen and remove the fetus. The fetus was found in a fair state of preservation; the surrounding sac, however, was nearly perforated at several points where pressure was greatest. The patient never fully rallied from the shock.

IV. IMPORTANCE OF EARLY DIAGNOSIS AND THOROUGH REMOVAL OF CANCER OF THE FEMALE BREAST.

JAMES H. LETCHER, M.D.,

HENDERSON, KY.,

Were it not that there has recently come under my observation several cases of mammary cancer, where the disease had gone away beyond the hope of relief by any surgical procedure—the only reliable method of cure—and the belief by many investigators that the number of cancer cases are rapidly increasing, I would not now introduce this subject for your consideration.

By way of adding interest, but not stopping to give any of the factors it is said produce such results, I will say there seems no doubt of an increase in the mortality from cancer. W. Roger Williams, F. R. C. S., England, in The Lancet, August 20, 1898, says: "In 1840 cancer caused 2,786 deaths, the proportion being one in 5,646 of the total population, and one in 129 of the total mortality, or 177 per million living. In 1896 the deaths due to it numbered 23,521, or one in 1,306 of the total population, and one in 22 of the total mortality, or 764 per million living. Thus the proportionate mortality from cancer is now four and a half times greater than it was a half century ago. In this respect its position is unique, for no other disease can show anything like such an immense increase." One might say that there is not in reality an increase in cancer, but that more cases are reported, because of more care being taken in making out death certificates, or because of the better methods of diagnosis. And again, that the greater proportion of deaths occurring at certain times and in certain localities is due to the fact of its parasitic origin, and that there are certain conditions that favor an increase in the parasites. Let this be true or otherwise, so strong is the belief that there *is* an increase of cancer cases that the English Government is already besought to appoint a commission to investigate its prevalence and causation, and the Legislature of New York has equipped and maintains a laboratory for the continuous study of the cause of cancer. So, too, the American Public Health Association, at its last meeting, passed resolutions approving and encouraging all like methods, not only by National, but by State authorities.

But to enter the interesting fields of the etiology and pathology of cancer, and of its supposed endemic nature which are attracting so much careful investigation and study, would not be germane to the subject here presented. Nor is it necessary to speak of the several varieties of cancer, usually occurring in the mammary gland, but some of the diagnostic symptoms will be mentioned, for it is important to recognize this condition early, if one hopes to be of any service to his patient.

Awhile since a lady was sent to my hospital, markedly cachectic, so weak that it fatigued her to walk across the floor, and with an offensive cancer of the breast; the surrounding atmosphere was filled with its odor, and I could but wonder that this poor woman, in the present enlightened age, should have been permitted to go on in great agony until relieved by death, without anything practically having been done for her comfort or prolongation of life. Whose fault? Certainly she alone is not to blame. This is but one of numbers of such instances, doubtless most of you having seen similar cases. While usually the patient will not consult her physician until there is systemic infection—she, of course, not appreciating her condition—the mistake, too, is often made by the doctor in not recognizing the gravity of his patient's ailment when first seen by him. Think of it! A surgical procedure, where the mortality should not exceed 2 or 3 per cent., making nearly 100 per cent. of such women more comfortable, prolonging the lives of 60 or 75 per cent., and curing 20 to 30 per cent. (even a greater number in selected cases), and yet not offered them.

In any suspicious case of tumor of the breast, especially occurring about the menopause, give your patient the advantage of a doubt by thoroughly removing it, with the glandular chain extending from it to the axilla, the glands in the latter and sub-clavicular spaces, and all the fat that surrounds them. Remember that the only hope of the patient is in the first operation, and if you fail to make complete removal, then later operations are probably of no avail. Remember also that more than 85 per cent. of the tumors of the breast are cancerous. Every breast tumor, it matters not how insignificant it may appear, nor how young and healthy the woman, should be carefully studied and kept under observation until cured. Do not forget that you have a pathological condition; and because, forsooth, there is no pain or discomfort, dismiss it from your own and your patient's mind, with the thought that it is merely an occluded milk duct, or other benign tumor, and will sooner or later disappear of itself.

The diagnosis is by no means always an easy task, for many of these growths do not present the classical symptoms of cancer of this gland. The mistake of diagnosing chronic mastitis or tuberculosis of the breast for cancer, especially of the epitheliomatous variety, might be made. In tuberculosis, while the patient may seem in general good health, there is apt to be tuberculous trouble in the lung or elsewhere. The use of the thermometer, and later on evidences of local inflammatory process, should aid in making a diagnosis. In mastitis the nipple may appear retracted, but the integumentary gland tissue surrounding it can be pushed back, showing that it is merely buried in the swollen tissues. Then again, mastitis is apt to occur during the puerperal state, and the pain is more pronounced. Treating the breast for a short while—two or three weeks at most—by rest, pressure, etc., one should determine whether or not he has a case of mastitis. The use of the microscope

here, as in all doubtful cases, should make clear the diagnosis; but if still in doubt as to its malignancy, look upon and treat it as carcinomatous. Though satisfied that it is a chronic mastitis, it is safer after the menopause to remove the breast.

There is often no pain or tenderness whatever accompanying cancer, and especially during the early months. Later on, particularly after ulceration, or if the tumor is growing rapidly, or is large, expect pain; and if there be pressure upon the nerves by the diseased breast, or secondary lmyphatic glandular enlargement, the pain may become well nigh unbearable. Look for infection of the lymphatic glands, which may appear early or late; in exceptional cases so late that this symptom is of but little value. In very fleshy women, though the glands be infected, it may be difficult to find them at all; and again, in some cases the lymph nodes are a more prominent symptom than the diseased breast itself. The skin becomes adherent to the tumor, presenting a dimpled appearance, and if the latter is in the region of the nipple, it will, in a majority of the cases, become retracted—really drawn in. A thin, milky, or bloody discharge, exuding from the nipple is now and then observed. The gland is less movable, finally becoming immovable, because of its attachment to the major pectoral muscle underneath. As a rule, these tumors are hard, having no regular outline, though now and then one has spots that fluctuate, due to the presence of cysts. The neoplasm may be in any portion of the gland, but most likely in the upper and outer parts. A more dangerous location is the upper and inner portion, because from here the glands of the neck and chest become so easily involved. When first attacked the patient is usually the picture of health, but soon cachexia, brought on by pain, worry, both night and day, ulceration, etc., is plainly visible.

The rapidity with which the tumor grows should not only aid in determining its character, but its malignancy as well. The age of the patient, 35 to 55 years, or about the climacteric, and the possibility in some cases of inheriting a predisposition, should be borne in mind. One possessing a reasonable amount of knowledge concerning tumors should be able, without much loss of time, to determine the character of trouble he has to deal with. If he has a cancer that should be operated on, knowing that the duration of life in the soft variety is only about one year, and the scirrhus about two and a half years, for the sake of the patient, himself, and the profession, and for humanity's sake, let him give her without delay the only relief possible, viz: extirpate all diseased and suspicious tissue; and upon the importance of this too great stress cannot be laid. The good effects of thyroid and other toxins would indicate that some day a cure for cancer may be found, but it has not yet been done.

We should educate the laity about the importance of the early removal of these growths, and if the public were as well informed as we many years of life would be added and many more years of suffering saved to women.

DISCUSSION.

DR. J. L. ATKINSON, Campbellsville: I have a word or two of testimony to add to the excellent paper of Dr. Letcher. I recall the case of a woman, 66 years of age, who had a cancer of the breast. The tumor was of slow growth. It enlarged gradually until it attained the size of a hen's egg. She consulted me with reference to its removal. I did a very extensive operation, but it was not as complete and thorough as it should have been. The wound healed nicely. There was no return of the trouble for two years, but at the end of this time it began to reappear, and later she again consulted me, and I did a secondary operation. This time the wound failed to heal. I mention this case to show that if the first operation had been as thoroughly done as Dr. Letcher said it should have been, the woman might have been cured.

V. THE TREATMENT OF SYPHILIS.

H. PLUMMER, M. D.,

HARRODSBURG, KY.

It was my pleasure to read at the Maysville meeting of this association a paper entitled "Syphilis: From Whom Did It Come, and Where Is It Now?" I now propose to occupy a few moments in discussing, as I understand it, "The Treatment of Syphilis."

I shall not propose anything new or startling. We start out with the proposition that syphilis has been almost universally classed among venereal diseases, and acquired by sexual transgressions; but that it may be acquired otherwise than by impure connection is now beyond peradventure, and is treated of by some authorities, notably Bulkley, under the head of non-venereal syphilis. It is not my purpose to dwell on the history or the histo-pathological conditions of the disease, but to merely give my views as to how to cure, or not to cure, it, in a plain, practical fashion.

The first indication of syphilis, as a rule, is a chancre, either upon or about some portion of the generative organs; or, perhaps, upon some mucous surface. When a chancre presents itself to me I remember that cleanliness is next to godliness. I clean it, make it and its surroundings immaculate, and complete the toilet by dusting freely with iodoform.

Almost without exception recent authors tell us to omit constitutional treatment until the appearance of secondary symptoms. I do not follow in the wake of such doctrines. When I have a genuine hard chancre to deal with, immediately my impulse is to put the subject upon constitutional treatment. I do not wait for the eruption, for sore throat, etc., but give my patient at

once systematic and judicious medication; that which will eradicate, if we can, the noxious power of the inoculated virus, which accounts for the physico-pathological process seen in the active stage of syphilis.

It is said that syphilis is a self-limited disease, will run its course, and the patient get well without treatment. Fournier asks: "Is it, or is it not, necessary to treat a syphilitic patient?" My answer is, rout the intruder, if possible.

The complications (the sequelae) are many, among which may be enumerated angina, cephalalgia, insomnia, myalgia, periostitis, affections of the eye, iritis, choroiditis, retinitis, also sarcocele, gummy tumors, paralysis of the face, caries, ozena, etc. Do not such troubles justify the intervention of treatment? Dare we call syphilis a benign affection? Shall we tell it in Gath that it needs no treatment? Nay, nay, my brethren.

From time immemorial mercury in some form has been the recognized antidotal agent for the syphilitic virus. With it we neutralize the virus. Well then, if the primary virus is made of no effect by this potential Sampson, can we have secondary or other lesions? I do not give it to tenderness of the gums and teeth; do not set up local and constitutional processes; but I administer it with tact, without doing any harm; then, with my motive accomplished, I give both my patient and remedy a rest.

The period of natural cure, or real latency, if you please, is about two years. After a systematic course of mercury, during which the doctor has done no harm, but infinite good, with all local lesions removed, I then reconstruct him, increase his vitality with good food and iron tonics, teach him how to live hygienically, in fear of God and man (wo-man).

A very popular way now-a-days to give mercury is by hypodermatic injection, and it is a most effective one, direct, with quick absorption; more so, in fact, than the plan of our father, Heroditus, which was later advocated by Cornelius Agrippa, from whom came the appellation, "Cornelius' tub." Ambrose Pare describes the method thus: The patient was seated inside the tub on a perforated stool, beneath which were placed hot bricks, or stones. Through a trap-door in the side of the tub a mixture of vinegar and brandy, to which mercurials and aromatics were sometimes added, was thrown upon the heated bricks. The steam emanating therefrom was confined by a sheet fastened around the neck. Rabelais said that he had often seen syphilitics, when greased with mercurial ointment, their faces on edge, like a knife, and their teeth clacking like a broken down organ, put into the steaming tub with beneficent results. But this author was partial to hot-air baths, which were not original with him, for Torella had employed them long years previously. We all know the reputation enjoyed by the Hot Springs, of Arkansas, and very justly; but I ween that the treatment pursued at this resort is not materially different from the hot baths used by Heroditus.

Those who heard my paper, referred to above, will recall my position with

regard to the connection between syphilis and phthisis; that if there had never been any syphilis there could have been no phthisis, nor any cancer, etc. After the lapse of two more years of experience I have not changed my position one jot or tittle.

In a paper read by Dr. J. A. Fordyce before the West Point meeting of the American Association of Genito-Urinary Surgeons occurs the following: In the so-called tertiary stage of syphilis the disorder is prone to again localize itself; and can, in the skin, imitate tuberculous processes, or malignant disease; in the subcutaneous tissues, new growths of malignant nature; in the bone, tuberculosis, or sarcoma; in the tissues, tuberculosis or other neoplasms. Syphilis of the tongue is one of the most common antecedents of cancer of this organ, it being sometimes difficult to determine when syphilis ceases and when epithelioma begins.

The questions of most vital importance to me have ever been:

First—Is a syphilitic always a syphilitic? I would answer, yes, always. If not syphilis *per se,* he has other diseases growing from the syphilitic poison.

Second—Is the germ of tertiary syphilis the same as the germ of secondary syphilis, and, also, the same germ that caused the chancre? Or is their virulency modified by removal from the chancre? I would say the same germ is the cause of all the trouble.

Third—Is syphilis a curable disease? Is it possible to eradicate all the syphilitic germs from a syphilitic? I would say emphatically, no. I do not believe syphilis is ever cured, in the sense in which we employ the word "cure." A person may seem to all intents and purposes cured of syphilis, yet it is apt to make its imprints manifest on some of his or her children.

I believe the germ that produces chancre is the same and has the same virulency as that which circulates in the system during secondary or tertiary syphilis, and so long as there is a single syphilitic germ in the system, such a person is a syphilitic, and may communicate the disease to others in various ways. For that reason I would say a syphilitic should never marry.

John M. Batten, M. D., of Pittsburg, reports the results of long treatment of a number of cases of syphilis, and I beg to call your attention to two of his cases in support of my opinion. A young man was treated for two years, beginning in 1864, for syphilis, by Dr. Jones, a very competent physician of his city, and that after this period the young man married a healthy woman, but she bore him no children. The wife soon after marriage was inoculated with syphilis by the husband. "Dr. Blank relates to me," says Dr. Batten, "a case as follows: A man, age 30, in May, 1880, contracted syphilis in the usual way, and was under treatment of Blank for ten years. At the end of this period he married a healthy woman. In a year after marriage she became pregnant by her husband, and in three months had a miscarriage. Shortly after the doctor noticed she had syphilis in its worst form."

Dr. Duffield reports in the Medical News, 1894, a case of syphilis, where

the husband married nine years after the inception of the disease. His wife and a child, which was afterward born, were infected. These cases might be added *ad infinitum*—they are familiar to you all. Why do about 90 per cent. of skin diseases respond promptly to mercury or iodide of potash? Why do many scrofulous and weakly children come from syphilitics?

Until very recently the syphilitic microbe was a thing in hoc. I have never seen one, but Van Niessen claims to have found "the old man." Of the history of the microbe I know but little. How long it may remain in the system I cannot divine. Its wonderful deleterious results, or effects, are not to be gainsaid or denied. The microbe of other germ diseases, acute or otherwise, do their work in short order. Either the patient succumbs, or the hosts of leucocytes overcome them, and the patient recovers. Not so with the syphilitic microbe. Its effects may be seen on a given individual's posterity years and years after its inception. If the gonococci linger in the genito-urinary tract for ages, is it more reasonable to expect the syphilitic microbe, whose history is far greater, will disappear sooner?

Multiplying germs can but remind us of some pleasures without happiness; clouds without rain; wells without water; flowers without fruit; hope deferred and gone forever; bright and sweet anticipations destroyed. Precious progeny, whose life is but a span; an open grave before them. What has been begun in haste may be repented of at leisure.

I would repeat that syphilis is never cured—never eradicated. You may fill the subject with iodides until you can smell him before you see him; you may anoint him with your mercurials until he is as slick as an eel; then you have but scotched the snake—you have not killed him. And, mark what I tell you, this syphilitic germ which has entered the blood once will always be there till the son of man sits in eternity.

DISCUSSION.

DR. F. J. YAGER, Campbellsville: I desire to say a few words on this subject. I have been practicing medicine for a long time, and have been very much interested in the Doctor's paper, which is the result of much care, investigation and observation, and I see no reason why we should condemn or object to anything that he has said. But the question arises, What is the profession going to do about it? It has been said by some that cancer and other tumors are the result of syphilis, as well as many other affections that afflict the human family. We have had this terrible and destructive enemy with us for a long time. It is a subject that follows our posterity and never ends, and I am not certain if, when the disease is introduced into the human system, we are ever successful in getting rid of it. Personally, I do not believe that one or six generations will ever wipe out this dreadful malady. Some of the purest females have been infected by this desperate disease. I have given the usual treatment for this disease to men and women, white and black, until I thought I had gotten rid of every vestige of the poison from their systems. I have given the iodides in large doses, and while I believe that I have done a great

deal of good by this method of treatment, it is still questionable whether my cases have been perfectly cured. I call upon my brethren of this great and noble profession to educate the people regarding the prevalence and consequences of this dreadful disease. If attempts are not made to curtail the prevalance of this malady it will destroy some of the best people on earth.

Dr. James B. Bullitt, Louisville: I have enjoyed the well-written and well-read paper of Dr. Plummer on syphilis. It is an interesting subject, and is always presented in an entertaining way by Dr. Plummer. If time permitted I might undertake to try to prove that there never would have been such a thing as syphilis had it not been for carcinoma or tuberculosis. I rose more particularly to raise my voice against dusting chancres with iodoform. Iodoform in itself is an abomination, and should not be used in any condition, except tuberculosis of bone. When iodoform is dusted on the chancres of these poor unfortunate devils, everybody is apt to point the finger at them on the streets. Cleanliness can be secured by other means; but do not let us dust chancres with iodoform.

Dr. Plummer (closing the discussion): I appreciate the remarks of both gentlemen very much, and my principal object in writing this paper and bringing it before the Society was to elicit some discussion. I admit that I know very little about this disease. I have studied it a good deal, but my practice has not been as extensive as that of some others.

Dr. Bullitt spoke of the use of iodoform. I referred to it in my paper as one of the agents that are used in the treatment of chancres, and I must confess that I do not like it myself. One can use half a dozen other agents to accomplish the same purpose. I do not suppose that any particular line of treatment can thoroughly eradicate this disease from the human system. A man with syphilis may live for many years and may die of some acute disease. When a man has had a hard chancre I do not believe he can ever be cured. I am firmly convinced, and it is a matter of statistics, that we never would have cancer, tuberculosis, and scrofulous diseases were it not for the existence of syphilis at some time or other, from the fact that I know of nothing on earth that will produce these diseases except the syphilitic germ in its modified form. What the germ is I do not know. The subject is one that every man should be interested in, and when we go to the European countries—the old countries of the world—and talk about the statistics, a few of which were mentioned in my paper at Maysville two years ago, the line of syphilitics in those countries is perfectly astounding. In fact, we hardly find anyone who has not had the disease in some form or other.

VI. LITHOLOPAXY WITH REPORT OF CASES.

A. H. BARKLEY, M. D.,

LEXINGTON, KY.

Lithotrity may with propriety be called the mother of litholopaxy. Lithotrity was formally practiced at several sittings, and the fragments left in the bladder, with the hope that the patient would evacuate them himself. It was not until 1824, when Civiale, of Paris, before a committee appointed by the French Academy to report on the merits of the operation, gave to lithotrity a stable place among the capital operations of surgery. A surgeon in 1813 conceived the idea that a stone might be crushed in the bladder. A Scotch surgeon advanced the same view in 1814. But it remained for Civiale to first accomplish the desired result and effect a cure.

Great advancement has been made in the treatment of vesical calculus by Dr. Biglow, who devised and used successfully an evacuator, which made litholopaxy the operation of choice when that can be had in the treatment of stone. There have been many modifications of this operation, only one of which deserves mention—that is "perineal litholopaxy." Perineal litholopaxy consists of crushing with a lithotrite, through an opening made in the membranous urethra. This is in reality a combined operation, and has some advantages, as a larger instrument can be used than could be passed by the urethra; also in cases of very large stones in old subjects who have cystitis and enlarged prostates. It is in such cases that thorough drainage of the bladder is so necessary, and this combined operation meets every indication. Cases of stone, complicated with stricture of the membranous urethra, are also well suited for this operation.

Much may be said in favor of litholopaxy. I think it is much preferable to lithotomy, as no cutting is necessary, unless the combined operation is done. The period of convalescence is much shorter, and no suffering, comparatively speaking, follows. One of the strongest points in favor of litholopaxy is the small mortality, since at all ages it yields a lower death rate than any other operation for stone.

At the extremes of life this is especially true. That litholopaxy in children does not give as good results as lithotomy is not borne out by statistics, as 1,213 cases of stone in children operated on by 11 operators, with a mortality of 2.22 per cent. Perineal lithotomy gives a mortality twice as great, and suprapubic lithotomy five times that of litholopaxy. The following are statistics of two very celebrated operators:

Perineal lithotomy, 602 cases, 19 deaths; mortality, 3.1 per cent.

Suprapubic lithotomy, 637 cases, 84 deaths; mortality, 13.1 per cent.

Litholopaxy, 284 cases, 5 deaths; mortality, 1.7 per cent.

Otis, Cabot and other surgeons of large experience in the treatment of stone have repeatedly proven that a child's urethra will admit of considerable dilating. Keegan states that the urethra of a child from 3 to 7 years of age will usually admit a No. 6 English lithotrite, and one from 8 to 12 years can take a No. 12 lithotrite. The size of a child's urethra is of great importance when the operation for stone in the young subject is to be considered.

I became very much interested in this some time ago, and undertook a series of examinations upon boys under 14 years of age. I examined 29 boys at the "Children's Home" and 21 boys outside, making a total of 50 boys examined in all. I divided them into two groups; those from 3 to 8 years, and those from 8 to 14 years. In the first group there were 32 boys; 26 of this number had urethras that would admit with ease a silk woven bougie, No. 11 French; 4 of the remaining 6 could take a No. 9 French; and the remainder, which was two, could take a No. 14 French. The last two were very precocious children for their age. In the second group there were 18 boys; 11 of that number had urethras that would admit No. 17 French; the remaining 7 would average No. 15 French. From the above 50 boys examined it will be seen that the sizes of their urethras compares favorably with the statement Keegan makes on this subject.

It will be noted that my figures are a trifle lower than Keegan's, but we must take into consideration the fact that I measured my cases with a French bougie, and not with a lithotrite, it being customary to dilate the urethra a size or two larger than the lithotrite, on account of the curve, and to give more room for the easy introduction and withdrawal of the instrument.

Most surgeons have of late advocated litholopaxy in preference to lithotomy in children where the stone is not very large. They also prefer it on the ground that the danger of emasculation is less.

The comparative value of litholopaxy with other operations for stone during middle life will be shown by the following. Thompson collected 932 cases of stone operated on, as follows:

Litholopaxy, 800 cases, with 46 deaths.

Perineal section, 115 cases, with 43 deaths.

Suprapubic cystotomy, 17 cases, with 4 deaths.

Statistics of more recent date show mortality of litholopaxy to be 4.5 per cent. against 9.7 per cent. for lithotomy, and 11.3 per cent. for suprapubic cystotomy.

This operation also shows a lower mortality among the aged than in early life, as 580 cases among old people operated on, with a death rate of 7 per cent., is far better than can be shown by any cutting operation. It is clear to my mind that if statistics prove anything, they prove that litholopaxy is the operation to be preferred.

I am aware that some very serious objections may be made against this operation; for instance, wounding of the bladder, clogging of the blades, and

the leaving of fragments of stone behind to form a nucleus for another stone. All the objections may be overcome by using proper care; for instance, the wounding of the bladder may be avoided if one fills the viscus with sufficient quantity of water, and thereby leaves no folds of bladder wall to fall within the jaws of the instrument. The clogging of the blades may occur, and may be overcome by forcing the male blade into the female, and working it backwards and forwards several times; this may not succeed, and an opening made in the perineum may be necessary to unlock the blades. Some surgeons advise that the opening be made above the pubes, as it is easier to unlock the blades through a suprapubic opening. As to fragments left in the bladder, it has been proven that this is not more likely to happen after litholopaxy than after any other operation for stone.

CASE 1. Mr. N., white, age 50, came to me on January 5,1899, and gave the following history: About 10 years ago he began to have trouble in passing his water, but paid little attention to it at the time, thinking it would improve. For a period of 3 months he apparently was better, but at the end of this time he again had trouble, and passed some mucus, which alarmed him. He consulted a physician, who prescribed lithia tablets. He continued to complain from time to time, taking first one thing and then another, without effect. About 4 months before he consulted me he passed some small stones, ranging in size from a pea on down. He complained of his water stopping suddenly, which could be relieved when he got in the recumbent position. He could feel the stone when he was subjected to any jaring. The pain was at the end of the penis and after urination; defecation was also painful. I sounded his bladder with a "Thompson" searcher and found a stone, the diameter of which measured approximately 1 1-4 inches; only one stone could be detected. The examination disclosed nothing of importance with reference to the bladder, there being no inflammatory trouble present.

He agreed to an operation, so I began to dilate his urethra up to a size that would admit my lithotrite. When this had been accomplished he went to the hospital, where I removed a stone weighing 400 grains. This stone was very soft, and was composed of cystin. Patient was in bed 5 days.

CASE 2. G. H., male, age 40, was referred to me by a doctor in an adjoining town. The patient had not complained at all until 5 years ago, when he noticed at times he would pass his water frequently. This was attended with pain, which was not at all constant, either in location or severity. The pain would be after urination, and under the end of the penis, or would be in the calf of one leg, or sometimes would be referred to the left foot. He said he suffered most when it was in his foot. This patient had absolutely no other symptoms than pain and frequent urination. I sounded his bladder and found a stone. I also employed the cystoscope, which verified the diagnosis; one stone was all that could be seen. I operated on this patient and removed a stone weighing about 180 grains. He made a nice recovery, being in bed only 5 days.

CASE 3. D. F., age 26, consulted me on July 11, 1899. He was apparently in good health. He gave the usual symptoms of stone, and also of stricture. I examined his urethra, and found a stricture in the membranous portion. It was dilated until it would admit a searcher. I explored the bladder and found one stone. I continued to dilate until the lithotrite and tubes could be introduced easily. This being accomplished, I operated on him at his home and removed a stone weighing 290 grains.

Nothing unusual happened during the operation; I might say that the stone was smooth and extremely hard, and was with some difficulty crushed, the operation consuming 1 1-4 hours. Convalescence complete and uninterrupted, patient being confined to bed four days.

CASE 4. C. S., age 49. I saw this patient in my office on August 4, 1899. He gave the following history: Seven years ago he had three attacks of renal colic, followed by an attack of cystitis. He continued to suffer more or less from that time until he was operated on. He passed from his urethra some blood on July 6, 1899. This occurred after he had been engaged in some active exercise. He frequently had pain at the end of his penis after urination, also irregular pains in the abdomen and down the limbs. I explored the bladder and found it to contain two stones. I also used the cystoscope, and could easily see two stones. I operated on this patient after two weeks of preparatory treatment, which consisted in washing out the bladder and rendering the urine alkaline and allaying what inflammation was present.

I had no difficulty in crushing both stones; the patient had no trouble whatever. He remained in bed 5 days, and left the hospital perfectly well. I had him continue for about a week longer his capsules of salol and boric acid. The fragments collected from the two stones weighed 437 grains.

CASE 5. On the evening of November 29, 1899, I was called to see Mr. D. I found him suffering intensely from a disturbed bladder. I placed him on his back in bed, and with difficulty drew his water. He told me that he had the gravel, and about once or twice a year for the past four years he had had just such attacks. I questioned him further, and found he passed some blood during or after an attack; had pain in the head of the penis.

I used a silver catheter the night I drew water, and found then that he had a calculus. I kept him in bed for several days, and then made a more thorough examination of his bladder, and found two stones. I used the cystoscope and found three stones, all rather small. I removed all of them by crushing. The patient was permitted to go home on the seventh day, and got out of bed on the sixth day.

It will be seen from the above cases that the period of convalescence is much shorter than after lithotomy; also the suffering is very little, and in two of my cases there was none at all.

Now, a few words as to the method of performing litholopaxy. I will not describe the operation in detail, but will respectfully refer you to any text-

book of surgery, only mentioning a few of the most important points. First, the patient should be free from all inflammation in the bladder and urethra if possible. I usually give an alkaline diuretic and capsules of salol and boric acid to render the urine less irritating, and as nearly sterile as possible. The kidneys should be free from any trouble. The bladder should be washed out with a warm 3 per cent. solution of boric acid prior to and at the beginning of the operation; not less than 8 drachms in the adult and from 4 to 6 drachms in a child should be left in the bladder; it is a wise plan to inject the solution through the evacuating tube you expect to use. Two lithotrites should be at hand, a large and small size. After introducing the lithotrites as much crushing as is possible should be done before withdrawing it, as it sometimes happens that the frequent introduction causes the mucous membrane to swell, so that towards the end of the operation the instrument that was easily introduced at the outset cannot be inserted; hence it is better to have a smaller at hand.

In operating on old subjects with enlarged prostates it may happen that there is a retro-prostatic pouch, and the stone lies in it. In this case the lithotrite may be reversed, in order to grasp it. If this does not succeed the pelvis may be elevated so as to allow the stone to drop back and be more easily seized. After the stone is thoroughly crushed, Biglow's evacuator should be used, and the washing continued until all fragments are removed. Several sizes of the tubes should be ready for use.

After all fragments have been removed, one should leave about 8 drachms of boric acid solution in the bladder. Patient is kept on fluid diet for several days, and then allowed to get up.

As to the contra-indications to litholopaxy, I will say that they are about the same as for the cutting operation. Tight strictures of the deep urethra and chronic cystitis may, strictly speaking, not be contra-indications, as the perineal litholopaxy may be done. Organic disease of the bladder may wisely be considered a contra-indication. Bladders that are sacculated and contain an encysted calculus are not to be operated on by this method.

VII. SOME COUNTRY SURGERY.

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Detailed reports of cases, whether medical or surgical, are always valuable when accurate, because we are able to avoid their errors and follow their successes in the treatment of our own patients. This is especially true in surgery. The average man, woman or doctor is naturally averse to the use of the knife, and when it really is necessary to resort to it no argument is of more avail than that Dr. So-and-So reported before our society, or in last month's journal, a case very similar to yours, and his patient is improving rapidly, or is well. On the other hand, by like description of those unfortunate cases where surgical aid was called in too late or the surgeon's efforts are futile from some other cause, the profession, and through them the public, may be shown the necessity for operative interference in apparently simple cases, in order to avoid the greater fatality of the more serious operations made necessary by delay. With these ideas in view, and the hope that I may help some doctor somewhere, as the encouraging or discouraging reports of cases by others have frequently helped me, I wish to present to the society a brief review of some of the country surgery I have done.

CASE 1. *Traumatic Obliteration of the Cavity of the Uterus.* Mrs. H. M., age 23, married five years, was seen in consultation with Dr. W. R. Francis. Four years ago the patient, while living near Cincinnati, was delivered of a dead and macerated fetus by craniotomy, after a labor lasting a week. Rendered septic during the labor, for several weeks her life was despaired of. During her sickness and the tardy convalescence following there was a large amount of ill-smelling vaginal discharge, which grew less and less, and after three or four months stopped entirely. Patient had not menstruated in the four years since her delivery, but at every menstrual cycle she had intense pain over the lower abdomen, considerable distension, hot flashes, rapid pulse, but no rise of temperature. The pain was so terrible that her cries were almost maniacal, and was only controlled by large doses of opiates. This would last three or four days, the abdomen remaining tender for a week or ten days, and the distension not entirely disappearing by the end of the second week. During the interval the patient was intensely nervous and apprehensive of the next attack. Upon examination, under chloroform, we found a very unusual condition. Uterus about half normal size, but perfectly solid, showing complete atresia. It was freely movable. Adnexa apparently normal. Hysterectomy was decided on, and a couple of days later, assisted by Drs. Francis, Hall, Lester and McCormack, I removed the uterus and adnexa per vaginam.

I selected the vaginal route in this case, because in cases where the uterus is not of too great size the shock is far less, convalescence is greatly shortened, and the dangerous sequelae of abdominal operations are almost entirely avoided. She rallied immediately, and slept well the night of the operation without an opiate, although the clamps, of course, were not removed for twenty-four hours. Her convalescence was uneventful, and her health has been excellent for a year since the operation. The cavity of the uterus was obliterated, except for little pouches, about the size of peas, marking the terminations of the tubes. Such a case is necessarily rare, as but few women can recover from an injury and septic infection so grave as to cause such a result.

CASE 2. *Carcinoma Cervicis Uteri.* Mrs. A. R., age 47, married 20 years and the mother of nine children, was seen in consultation with Dr. W. A. Francis. During her last labor, five years before, she had suffered a bilateral tear of the cervix, and since that time her health had been bad. For a year past she had noticed a gradually increasing muco-purulent vaginal discharge, and for seven months this had been more or less tinged with blood. For the past four months the hemorrhage had been considerable and almost continuous. Dr. Francis had suspected that the resistant ulcer in the cervix was carcinomatous for some time, and had urged an operation. Being both unwilling and unable to leave her home for an infirmary, she had consulted a surgeon, who made local applications for some time. Upon examination I found the uterus freely movable, the usual appearance of carcinoma of the cervix, and a very slight infiltration in the fornices. The broad ligaments seemed to be as yet free from infection and the adnexa to be normal. After the usual explanations as to its possible results the patient decided to submit to an operation. We ordered three very large hot douches a day, and Warner's Tono-Sumbul Comp., four drachms, t.i.d.a.c. The hemorrhage was checked, and she soon gained enough strength to make the operation feasible. A week after I first saw her, with the assistance of Drs. Francis, Lester, McCormack, and Miss Thomas, a trained nurse, I did a total extirpation of the uterine organs per vaginam. I selected the vaginal operation, because it could be done more quickly, and our patient was too weak to stand a prolonged abdominal extirpation; and as the infection seemed confined to the peri-cervical tissues, it was more readily removable from below. In making my anterior incision, owing to the extreme friability of the cervical tissues, I wounded the bladder, and I improved this accident by trimming away much of its inter-ureteral surface, closing it with a continuous suture of fine catgut. I improvised a self-retaining catheter from the rubber tube of my paquelin, stitching it to the meatus. Our patient had an uneventful and rapid convalescence, the bladder wound especially giving no trouble whatever. She began to sit up in ten days, and helped her daughters in the housework after the third week. A month after the operation she had a severe attack of measles, from which she recovered readily. It is now five months since the

operation. She has gained in weight and color, eats and sleeps well, is free from nasty vaginal discharge, and is strong and hearty. While the danger of recurrence is great, I feel that enough good has already been accomplished to warrant the operation, and that the recital of this case should be a warning to every member present at this meeting to urge upon their multiparous patients with lacerations of the cervix or perineum that they be repaired in order to overcome the tremendous danger of carcinomatous infection after they pass the age of 40, and to watch most carefully any ulcerations of the cervix in your patients, and to require pathological examination and operation if they are increasing in size.

CASE 3. *Abscess of the Broad Ligament.* Miss ——, age 18, had a criminal abortion done by an unregistered doctor. She became infected, and we first saw her on the fifth day. Temperature, 104 degrees F. Pulse very rapid and soft. Respiration labored and short. No vaginal discharge. Pain and tenderness over whole abdomen, but especially marked over right flank. After posterior vaginal incision and evacuation of the contents of the abscess with subsequent drainage the patient made a speedy recovery.

CASE 4. Mrs. B., age 24, nullipara; married several years. Was seen in consultation with Dr. Blakeman. Patient gave a history of specific gonorrheal infection, painful menstruation, salpingitis, localized peritonitis, and for some weeks intense tenderness and pain over right ovarian region. Upon examination we found a large abscess in the right broad ligament and a chronic purulent endometritis. Did a thorough curettement, after Warner's method, and posterior vaginal section, and evacuated the abscess. A large purulent discharge continued for some weeks. The patient has continued to improve for several months, and is in better condition now than since her marriage.

These two cases are more instructive when considered together. The first was an unmixed streptococcus infection; the latter was evidently due to the more dangerous, if less acute, infection from gonococci. The first responds readily to surgical interference; the latter much more slowly, and is much more likely to recur. Let us warn our male patients with gonorrhea against coition for their own sakes, as well as the women's. Let us remember that gonorrhea in male or female is one of the most obstinate and incurable of diseases. And, above all things, let us not direct our patients to use a syringe or a wash for a week or so until the discharge is apparently gone, and they give them the halcyon, but false, assurance that they are cured.

CASE 5. *Intraligamentous Ovarian Cyst, Adherent.* Mrs. S., age 35, multipara. Was seen in consultation with Dr. G. W. Armes. Patient was greatly emaciated; had some temperature; rapid, flabby pulse; abdomen greatly distended; pain and tenderness over the entire abdomen, and was evidently a very sick woman. She had first noticed a small growth in the right flank some two years before, and a year before had had a first severe attack of peritonitis. This was the fourth similar attack, each succeeding

one becoming more severe as the growth became larger. It was now about the size of a gravid uterus at term. Per vaginam we found that the uterus was anteverted, and almost extruded, and a tense, fluid tumor was felt through the posterior fornix. On supportive treatment she gained some strength, and our diagnosis of ovarian cyst was confirmed by laparotomy ten days later. I was assisted by Drs. Armes and McCormack, and Miss Graham, a trained nurse. The recent peritonitis had been so general that the tumor was absolutely adherent to every abdominal organ from the stomach down. The cyst wall was very thin, and their separation from intestines and peritoneum was tedious. The operation required an hour and thirty-five minutes, during which time, under Dr. Armes' skillful management, the patient took very little over a tablespoonful of chloroform. She was entirely conscious, except during the initial incision and the final suturing, and yet suffered very little. After the removal of the tumor, as some of the cyst contents had leaked into the general cavity, I flushed the abdomen with normal salt solution several times. The abdominal incision was sutured by the tier method, the skin being closed by Halstead's subcuticular stitch. Patient's kidneys acted voluntarily within two hours, and her bowels the same afternoon. The dressing was removed for the first and last time on the thirteenth day. Her health has been excellent for a year since the operation.

CASE 6. *Molar Pregnancy.* Mrs. S., age 22, married three years, nullipara. This patient had been delicate since girlhood; always suffering with dysmenorrhea and pains over the ovarian regions. Her menstrual periods had been very irregular. When I was called she had been in bed two months under the care of another physician. She complained of great tenderness over both flanks, great and persistent nausea and vomiting, entire loss of appetite, and her pulse was 128, and her temperature 100 1-2 degrees F. The present attack had commenced with what she thought at the time was her regular monthly sickness, which was two weeks late, although she remembered having wasted much more than usual, and having passed some clots. Upon vaginal examination I found the uterus somewhat enlarged, the cervix very much elongated, and the os very small and rather ragged. There was a considerable amount of apparently muco-purulent, odorless vaginal discharge. Uncertain as to the diagnosis between a chronic endometritis, with a rather severe sapremia, and a local peritonitis, in either case following an abortion, I did a diagnostic curettage. The patient took chloroform very badly, owing to her deficient blood supply. The os was very rigid and dilatation difficult. Upon its completion I removed a flesh mole, which the rigid os had prevented from discharging at the time when it was separated from the uterine wall. There was a co-existent simple endometritis. The patient has improved rapidly, and is now in better health than since girlhood.

CASE 7. Mrs. C. S., age 25, the mother of three children, gave a history of repeated attacks of severe cystitis, leucorrhea, dragging pains in the uter-

ine region, and inability to walk far or to lift anything without pain in the small of the back. When I saw her she had been in bed for some time with a very severe cystitis. Upon examination with Kelly's cystoscopes I found no apparent abnormality in the bladder. Examination of the urine showed many broken down bladder cells. The uterus was enlarged, retroverted, and prolapsed almost to the vaginal outlet. There was a slight external laceration of the posterior vaginal wall. After a few days of hot douching I did a thorough curettement, and a Kelly's perineorrhaphy, assisted by Drs. Lester and McCormack. This patient's improvement after operation was very rapid. She has gained in weight, health and spirits. Perineorrhaphy is an operation devoid of danger, and if it were done in every case where it is needed I believe it would do more to promote the health of child-bearing married women than any other one thing doctors can do.

CASE 8. *Strangulated Femoral Hernia.* Mrs. K., age 54, had had a left inguinal hernia for some years. It was supported perfectly by a truss. Two days before I saw the case in consultation with Dr. E. N. Hall, he was called to see her suffering with pain over the abdomen, intense nausea, some vomiting, headache and backache, no temperature, pulse rapid and thready. Upon examination he found a flabby abdominal wall with a small lump over the right femoral region. Promptly appreciating the serious condition present, a strangulated femoral hernia, he tried to reduce it by taxis, and, upon his failure to do so, insisted on immediate operation. Upon incising the sac I found the knuckle of intestine of a dark, mahogany color, but cut the ring and let it drop into the abdominal cavity. It soon regained its normal appearance. A delay of even a few hours longer would have greatly complicated the operation and endangered the integrity of the gut. In closing the incision I did a radical cure, using chromicized catgut for the buried sutures. During her convalescence, although she had not required the use of the catheter, she developed a severe cystitis; but under Dr. Hall's skillful management this was soon relieved, and now, two years after the operation, her cure is complete. This case emphasizes the importance of early operation to obviate the difficulty of more dangerous proceedings as *dernier ressorts* after delay.

CASE 9. J. B., male, age 20, while intoxicated had the first and second toes of each foot crushed by the street cars, the metatarsal structures being badly bruised. When we were called in the wound was covered with dust from the road, and cinders were ground into the lacerated flesh. We removed the remainder of the toes and as much of the cinders as possible, but the danger of tetanic infection was so great that we packed the wound with gauze drainage, treating it as an open wound. On the fourth morning the patient complained of having taken cold, stiffness about the back of the neck and throat. I telegraphed for P. D. & Co.'s anti-tetanus serum, but before its arrival his jaws became locked, and he had seven severe convulsions. On its

arrival the second morning I gave him 20 c.c. of the serum by hypodermic. During this day he had over thirty severe convulsions, opisthotonos being well marked. On the third morning I repeated the dose of 20 c.c. of the serum. During this day he had sixteen convulsions. From the third to the fifteenth day I gave him 10 c.c. of the serum each morning. He had five convulsions on the fourth day, three each on the fifth and sixth, and from the sixth to the tenth he had from two to six severe diaphragmatic spasms in each twenty-four hours. His jaws relaxed on the fourteenth day. During the entire time I had the nurses pour large drinks of water between his teeth, and he had very little diminution in the quantity of his urine. He recovered from the lock jaw ten days before the injuries to his feet had healed. His further convalescence was uneventful.

This was the seventh case of lockjaw I had seen. All of the others were fatal. I can find record of but few cases that have recovered where the initial convulsions came so soon after the injury, as in my case. In injuries which have had opportunity to become infected from the dust of roads, of harvest fields, or from rusting iron, I feel confident that many fatal cases could be avoided by the use of immunizing doses of the serum. While we cannot yet be confident of its therapeutic value, I propose to use it in heroic doses, and for a long time, if I can get it early enough.

CASE 10. W., male, age 35, was struck in the head with a large rock, causing a depressed fracture of the skull about the size of a silver dollar. He had been a regular drinker for years. With the assistance of Drs. Walker, Waggoner, and Miss Murdy, a trained nurse, I removed the depressed area. Our patient improved immediately, and did well until the first dressing was applied at the end of a week. He was infected at this dressing and died in two days. I find that injuries to the brain are much more regularly fatal in habitual drinkers.

CASE 11. John, a negro boy of 17, was struck over the parietal bosse with a heavy stick. When I saw him a week after the injury there was a large hematoma over the bosse; he was unconscious and pulseless, and apparently in extremis. He had been having epileptiform convulsions since the second day after the injury. With the assistance of Drs. Lester and Barr I incised the hematoma, finding a linear fracture about two and a quarter inches long, running almost to the mastoid process. I trephined and found a large subdural clot. I incised and removed this. The hemorrhage had evidently been stopped by the pressure on the vessels and the feeble heart, and I closed the wound. The patient rallied promptly, and had an easy convalescence. In a year since the operation the injury has given him no trouble.

VIII. INFLAMMATION OF THE MIDDLE EAR IN INFANTS AND CHILDREN.

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Much practical work has been done in the dead-house by German authors, especially by Hartmann and Barth, in the last few years, to impress upon the profession the frequency with which the middle ear is involved in infants and young children sick with other and divers affections. Barth, who bases his opinion upon a large number of autopsies personally conducted, and upon those reported by other reliable authors confirming examinations made of the ear during life, opens his discussion on this subject (Archiv fur Ohrenheilkunde, 1898) with the statement that of 600 sick infants examined before and after death, 80 per cent. were found to have a lesion of the middle ear. The frequency of middle ear involvement is particularly noticeable in measles. Tobeitz, who has studied the changes occurring in the middle ear during measles, is of the belief that the ear is affected in every case of this disease, varying only in degree.

Rudolf and Bezold, who also examined the middle ear of quite a number of infants and children who had succumbed to measles, found it always to contain muco-pus. While it seems improbable that so large a percentage of sick children should have pathological changes occurring in the middle ear, research by others has corroborated this result. The autopsies showed that although the tympanum be inflamed and filled with pus, the drum membrane, as a rule, remained intact, and showed but slight changes. This and the usual absence of subjective symptoms accounts for the condition being so readily overlooked in every-day practice.

A muco-purulent fluid is so frequently found in the tympanic cavity of the new-born that it is by many authors looked upon as a physiological condition. The fluid often has distinct signs of the presence of amniotic constituents, which has led to the natural conclusion that the amniotic fluid finds its way into the tympanum during efforts of deglutition by the fetus, and sets up an irritation and outpouring of leucocytes.

Before entering more fully into the pathological changes which take place in the tympanum, I would ask a moment of your time to point out the principal anatomical differences between the middle ear of infantile and adult life. The tympanic cavity in the first place is relatively smaller in infants than in adult life, and is more deeply situated. The antrum is proportionately large, and is situated higher than the tympanic cavity and posteriorly to it. The bony wall about the middle ear is delicate, and more or less spongy. The drum membrane is more delicate and more elastic than later. The mastoid process is very rudimentary at birth; it may, in fact, be said to be ab-

sent. The eustachian tube is shorter, and has a greater lumen than the adult tube, admitting of a free circulation of air and the escape of exudation from the tympanic cavity to the pharynx. The wider passage may, in a measure, be held accountable for the frequent infection of the middle ear from the naso-pharynx.

The etiology of otitis media in children has been widely discussed by otologists. While it is still held that during the exanthematous fevers the mucous membrane of the ear may be infected through the circulation, as in the skin, and the mucous membrane of the nose and throat, it is the consensus of opinion that by far the greatest number of middle-ear inflammations receive their infecting element through the eustachian tube by extension of the inflammation (during acute choryza, broncho pneumonia, etc.), or by foreign substances carried through the tube by currents of air. The lowered vitality occurring during the diseases of infantile and child life undoubtedly play no small part in the causation of inflammation of the ear. The low form of the inflammation is also attributed to the reduction of the vitality. The mucous membrane is less resistant, and does not cause the same amount of reaction as it would under more normal conditions.

This benign course of the inflammation may be looked upon as one of the characteristics of otitis in early life. Pain is not as frequent and pronounced a symptom as in adults, so that frequently the only evidence we have that a child's ear is inflamed is the placing of the hand to one or the other ear, and more or less restlessness. There may be a rise in temperature, or it may remain normal. Sometimes the first evidence of an undiscovered abscess is the escape of pus from the ear, though spontaneous rupture of the drum is not as common as in adult life, on account of the more accessible avenue of escape given the pus by the short and wide eustachian tube in children. Whenever the pus drains into the naso-pharynx, inspection of the drum membrane may tell us nothing of the inflammatory condition, as it is usually not swollen or discolored. Inflammatory products may glue the tube, in the event of which the drum would be found bulging. Likewise it would protrude in those not infrequent cases where the pus is so thick and tenacious that it will not drain, but cakes, and is gradually reabsorbed.

The tendency of the inflammation to spread to the mastoid cells is not so great in children as later in life, and when it does occur the mastoid inflammation shows greater tendency to subside spontaneously. Operative interference is consequently less often called for. The symptoms of mastoid involvement in children are often as obscure as are those of the primary otitis media. The delicate trabeculi of bone between the tympanum and antrum readily break down and form one large cavity, which may become filled with pus and granulation tissue without causing external signs over the mastoid or in the ear canal.

While the local signs of otitis media are so vague, the inflammation exerts an influence upon the general health of the child which is rarely observed in

adults. They lose their appetite, become emaciated and weak, and finally go into a state of general marasmus. In such cases the digestive disturbances come so prominently under the observation of the practitioner that an involvement of the ear is not thought of. Knowing the frequency with which otitis media occurs in young children and the obscurity of symptoms, the suggestion of Barth to examine the ears of all unwell infants several times during their illness appears rational.

To inspect the drum of infants a small speculum previously warmed should be employed, and the auricle pulled gently backward to expose as much of the membrane as possible. It is an astonishing fact that infants quiet down and cease crying as soon as the speculum is placed into the ear canal.

If the inspection reveals an inflamed drum, treatment on the lines recommended in adults should be instituted. The application of iced cloths, or, if badly borne, the use of the hot-water bag, acts beneficially. At the first appearance of retention of pus, or of an extension of the inflammation to the mastoid cells, the contents of the tympanum should be evacuated by paracentesis of the drum. The incision ought to be kept open as long as acute symptoms are present, a rule which applies also to the cases where the drum ruptures spontaneously. I have been able to do this most successfully with chromic acid. After cocainizing the edges of the wound and subsequently drying, I place a crystal of chromic acid into the opening. After the crystal has dissolved the acid is removed with a cotton probe. By this means the opening is kept large and smooth without causing the patient pain. It is important that the escaping pus be frequently removed by gentle irrigation with a solution of boric acid or permanganate of potash. During the irrigation the fluid sometimes passes through the eustachian tube into the nasopharynx.

In the management of middle-ear abscesses examination of the nasal passages is of considerable importance. A cleansing spray (normal salt solution) often has a beneficial effect upon the condition of the ear by removing products of inflammation and opening the nasal passage. If adenoid enlargements are found their removal is indicated.

Whenever the symptoms of mastoid involvement are pronounced or persistent the mastoid must be opened. In entering the mastoid in young children the high position of the antrum should well be borne in mind, a line directed backward from the zygomatic process marking its height. It is very difficult, on account of the incomplete ossification, to tell whether the scalpel has entered the antrum or not. Hence the greater danger of incising the sigmoid sinus, whose location is so uncertain at this time of life. Fortunately a small opening into the mastoid usually suffices to effect a cure in babies, as the necrotic masses exfoliate much more readily than in adults. The prognosis of otitis in infants and children as regards their ultimate function of hearing is always uncertain, and depends largely upon the extent and severity of the inflammation.

IX. CLUB FOOT OR TALIPES.

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It is my purpose to present for your consideration to-day a subject not new, but one which is ever interesting to us all, because of its frequency, and of the certainty of the deformity growing worse every day until relieved, thereby causing great pain and distress; lastly, because of its easy relief and treatment in some cases and its insurmountable obstacles in others.

Picture to yourself the sorrow, grief and disappointment that only a few years ago would have been depicted upon a mother's face when told her first born babe was clubfooted—a child doomed to life-long deformity and invalidism. But thanks to the great Sayre, whose immortal name shall ever be dear to us all, how different is the picture to-day! For almost every mother, however young she may be, knows that nearly every congenital clubfoot can be straightened and cured. And the expressions of horror and sadness upon the American woman's face, at least, are now happily replaced by those of hope for her child and confidence in her own countrymen, inspired by the teachings of Sayre, Gibney, Phelps, Whitman and others.

Since Sayre's publication of his book in 1876, orthopedic surgery has become an established science. We can only touch upon one of its branches today. Under the head of clubfoot, or talipes, are classed all those deformities which in any way cause permanent deviation from the normal relations existing between the foot and leg, or between the bones which compose the arch of the foot.

Talipes is usually divided into—1, talipes varus; 2, talipes valgus; 3, talipes equinus; 4, talipes calcaneus, to which may be added, 5, talipes cavus, or plantaris. It is rare that any one of these deformities is seen alone. It is usually combined with other varieties, when it takes a compound name. For example, when we have both equinus and varus, the name would be equinevarus, or varo-equinus, according as one or the other predominated.

Any one of these deformities may be congenital or acquired. The congenital forms are usually not paralytic, although the opposing muscles are weakened. The acquired are almost universally so; barring those due to contractions from injury, they are entirely so. The spastic paralytic varieties can best be treated in a group to themselves. None of the varieties are hard to diagnose. Talipes varus is where we have the sole of the foot turned up and the toes in, with contraction of the anterior and posterior tibial muscles, and ligaments and fascia on inner side of foot. Talipes equinus is caused by contraction of the gastrocnemius and soleus; the toes turned down and heel up,

and patient walking upon metatarsophalangeal joint. Talipes calcaneus is just the opposite of talipes equinus—heel down and toes up; nearly every case of this deformity, whether congenital or acquired, is paralytic. It is frequently caused by rupturing of the gastrocnemius and soleus, and from burns on the anterior surface of foot, with severe contractions.

Talipes Valgus. Here the condition is just converse to talipes varus. Now the inner border of the foot is down. To this variety belongs flatfoot. It may be congenital, but usually is acquired, and is nearly always due to paralysis or weakness of the tibial muscles, or to traumatism. It is a very common deformity, and one of the most, if not the most, painful forms of clubfoot we have to treat. Infantile paralysis, occurring in infancy or childhood, causing paralysis of the tibial muscles, is one of its most frequent causes. You will find it later in life, developing in two classes of cases particularly: 1. In boys or girls; especially girls who have grown very rapidly, and whose nerve and muscular forces have not kept pace with the rapid strides of the body weight. They present cold, livid, and flabby extremities. The tibial muscles are weakened, and finally give way entirely. Displacement of the bones of the foot and consequent pain result, causing a deformed walk. 2. In men or women; especially men, who are upon their feet continually, throwing constant strain upon the arch of the foot. The tibial muscles and arch finally give way, and the same chain of symptoms result. As these feet nearly always develop metatarsophalangeal inflammation, they most frequently present themselves for treatment of rheumatism. This is about the only form of talipes that presents any difficulty in diagnosis.

Talipes Plantaris. This variety is caused by contraction of the plantar fascia, causing an increased arch. It is sometimes found alone, but most frequently in combination with other forms of clubfoot. As to the cause of congenital talipes we know very little. Much speculation has been indulged in, but little that is satisfactory has been developed.

Treatment. This is by far the most important branch of our subject. Of course, every case will have to be treated according to the needs of that particular case. But there are certain general indications in every form of this trouble. 1. Restore the foot to its normal position. 2. Keep it there by artificial means until— 3. You have improved the nutrition and strength of the parts sufficiently to retain the foot in the proper position without external aid.

Within the last few years appliances have become very much simplified. In most cases your hands, a tenotome, some plaster of Paris bandages, adhesive plaster, a bit of rubber tubing, and a few simple braces, together with a knowledge of the subject, mixed with the "essence of time and tincture of patience," will accomplish all that can be done. Let us start with those cases that can be treated and cured *without operation*, and there are certain cases of this variety which only require manipulation and retentive apparatus, massage,

etc., to cure them. Take, for example, a case of congenital talipes varus. Take even a severe form, when the soles are turned up and the toes turned in. Now, if upon examination you find that foot can be replaced only temporarily even, then you will not need to operate. More than likely you will notice that when the foot is put into its normal position the pressure and tension exerted upon the blood vessels will cause the foot to become exsanguinated, and if kept in this position for any length of time it would become gangrenous and die. So you see that one could not be guilty of a greater sin than to push an infant's foot into place, shutting off the blood supply, and then fixing it in plaster of Paris or other dressing and leaving it, telling the mother to give it enough paregoric to keep it from fretting. But if you gently manipulate that foot, pulling it around into place every now and then, and leaving it there for only a short time, and teach the mother how to do the same thing many times a day while you are away, you will shortly find that the foot has grown so much better that you may now apply a retentive apparatus, holding it in much better position than you could at first. Now keep this up, and with your retentive apparatus always in place, gaining ground all the time, and you will find by the time the baby is ready to walk it will have a straight foot to walk upon. These same principles hold good in any case of talipes of like nature, whether it be one form or another.

Next, let us take up those cases where the tendons are so *contracted* or *contractured* that the foot cannot be replaced. According to Sayre, if these muscles are only *contracted,* then it is still not necessary to operate. But if we have the *contractured* tendons, which he describes as a tendon that, when placed on the stretch, in the endeavor to replace the part, will give reflex spasm under the point pressure, we should operate. My own experience is that if there is any great resistance to replacemnt, even though you do not get the reflex spasm, it is better to sever the tendon. You will get as good, or better results, and save a world of time. Now let us suppose a case for operation. For brevity I will take a compound case—say one of talipes equinovaroplantaris. It is very important to begin operation upon the anterior deformities first, so that the heel will be held firmly by the tendo Achilles, while great force is being used in correcting the varus and plantaris.

Put the tibial muscles on the stretch, introduce the tenotome, and cut them both. Now apply all the force you can, and if the foot does not come into position by breaking and tearing, reintroduce the knife and cut whatever is necessary. But be sure of one thing—*do not stop until you have over corrected the deformity; if you do you will have a relapse.* Now, supposing you have reduced the varus, cut the plantar fascia, if you have not already cut it in reducing the varus. When you have satisfied yourself on the anterior deformities, cut the tendo Achilles, and bring the foot up beyond the right angle. Now seal up the openings with adhesive plaster, being sure not to compress the tendon sheaths and cause non-union of the tendons. Over a soft

bandage apply the plaster of Paris while the foot is in an over corrected position. When the plaster has set trim around the toes, to be sure the circulation in them is all right. Do not give the patient morphine, for there should be no pain, and if there is any it is caused by too tight plaster, and it should be removed. After two weeks remove the dressing, and if everything is getting on all right replace the dressing; but if the position is not what it should be, this is the time to make it so. Leave the second dressing for another fortnight, when the tendons will be sufficiently strong to begin movements and walking. At the same time massage to the foot and leg and electricity to the opposing and weakened muscles should be used. Be sure the foot is held in good position while walking. All similar cases of whatever deformity are treated in the same way.

We now have left only those old tough cases, those due to accident, and the paralytic varieties. The old cases are treated exactly like the ones just described, except that they are a great deal harder to cure. Here all tissues on one side are *contracted* or *contractured,* bones are malformed, etc. Hence it will usually be necessary to use assisting apparatus to pull it into shape, such as the simple lever, Bradford's buster, or Phelps' apparatus, for pushing the foot into place. It may even be necessary to make Phelps' open incision, or to take out the astragalus, or cuboid, as some advise, or a wedge-shaped plug from the scaphoid and cuboid, before the foot can be got into shape. When the deformity is due to scars resulting from deep burns, the cicatricial tissue must be dissected out and the raw surface covered with Thiersch's skin grafts. If, however, the deformity is caused by several tendons, they should be dissected out and reunited.

Paralytic Clubfoot. Treatment. Let us consider first under this head flatfoot. In treating this condition the first thing to do is to replace the dislocated bones and restore the arch. Most cases can be restored with ordinary force; others require great force, besides cutting of the peronei tendons. In many of these cases, even after this, it is necessary to keep the foot in plaster for some time to overcome the forced tendency to displacement. When you have overcome this, then apply Whitman's spring and develop the tibial muscles. It is curious to see what strange, heavy and cumbersome apparatus and braces these patients often come to you with, all of which are unnecessary, and have been fitted by a brace maker.

Treatment of Other Forms of Paralytic Clubfoot. Of all forms of clubfoot, these are the most difficult to do anything with in the way of treatment. Under this head are included all those between the very slightly paralytic, with only moderate deformity, and those that are completely and extensively involved with marked deformity. The first variety are treated by retentive apparatus, massage, electricity, etc. Many of these cases will entirely recover in time. Those that do not recover may be transferred to the latter class for treatment. This class requires much more thought and attention to do any-

thing with them. Nearly, if not all of them, result from infantile paralysis. I know of no cause that does more irreparable damage to children's feet and legs than infantile paralysis. Consequently it is important to be on our guard, that we may recognize the trouble early and do all we can for them. Unfortunately we are seldom called until the attack is over, only the resulting paralysis attracting serious attention. Until the spring of 1892 braces of one kind or another were relied upon as the sole aid for the latter class of patients. At that time it occurred to me that *tendon grafting* might be done on many of the cases; thereby having a strong muscle take the place of its fallen brother, or in less severe cases to assist it in its too heavy burden, and still do its own work. In the majority of cases of paralytic valgus, resulting from infantile paralysis, while the tibials are completely paralyzed, the extensor pollicis lying in immediate proximity is but seldom involved. In fact, it is frequently so strong as to cause dislocation of the great toe upward. Now, the action of this muscle is of much lesser importance than that of the tibials. I therefore decided to try upon one of these cases my principle of tendon grafting—that is, to cut off the tendon of the extensor pollicis and stitch it to that of the anterior tibial. I demonstrated in the dissecting room its feasibility, and on May 15th, 1892, with the assistance of Drs. Lewis A. and Reginald Sayre, performed the operation upon May C., age three years and ten months. Both tibial muscles were completely paralyzed; foot strongly everted; extensor poprius pollicis good. This was the first time this operation was ever done. I afterward found that Nicoladoni had suggested a similar operation before, but the suggestion had never been carried into effect. At any rate, as far as I was concerned, the idea and operation was original with me. This operation held the foot in good shape for some time, when she had another attack of paralysis and caught the extensor pollicis, thus destroying our hopes of curing her. In the following fall I published this case in the New York Medical Journal, and enunciated the principle of tendon grafting. I have not the time to report other cases, but a great deal has been done by different men in that line since. Goldthwait, of Boston, has published several papers upon the subject. Of course, the operation can be done in only a limited number of cases, as the anatomical and physiological conditions will permit. However, its range of influence has not yet been determined, for new combinations are constantly being formed. I will suggest just a few of them.

1. That already mentioned, when the pollicis is grafted to the anterior tibial.

2. Paralysis of posterior tibial, with graft from flexor longus pollicis, or from one of the peronei muscles being brought over under the tendo Achilles and grafted to it, and establishing equilibrium in that way.

3. Paralysis of gastrocnemius and soleus, when the flexor longus pollicis or flexor longus digitorum, or both, may be grafted to the tendo Achilles.

4. Paralysis of the peronei may be benefited by grafting flexor longus digitorum onto it.

5. The sartorius may take the place of the paralyzed rectus femoris, etc.

In doing the tendon grafting operation the patient should be given a general anesthetic. The primary, or skin, incision should be made to one side of the seat of operation, so that its line of union will not be over the tendon sheath and cause adhesion to the skin. Find both tendons, doing as little damage as possible to surrounding tissues. Sever the tendons at the proper places, split one, flatten the other, and run it into the slit and secure it with mattrass sutures, so as to make as extensive coaptation as possible; first, however, shortening the muscle as much as possible, thus holding the foot in good position. Anchor the distal tendon end of the tibial muscle where it will best do the work it was intended to do and close the wound. Put up foot in plaster of Paris and leave for two weeks. Remove cast and see that everything is all right, then reapply cast and leave for two weeks more, when the union will be strong enough to begin massage, faradism and light use. Employ absorbable sutures all through.

X. TRANSPLANTATION OF TENDONS FOR THE CORRECTION OF PARALYTIC DEFORMITIES.

AUGUST SCHACHNER, M. D.,

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Tendon surgery practically originated with Nicoladoni in 1881. Prior to that date the surgery of these structures consisted of tenotomy and the union of divided tendons; or, in other words, of the division and reunion of tendons.

Nicoladoni's first operation consisted of the transplantation of the peroneus tendon to the tendo Achilles for talipes calcaneus. Since this period the operation of transplanting tendons has been thoroughly tested with most satisfactory results, but only by a rather limited number of operators, prominently among which are Nicoladoni, Drobnik, Goldthwait, Franke, Vulpius, Bradford, and others.

The lack of popularity was almost entirely due to the scarcity of the literature on the subject. At first the usefulness of this procedure seemed to be confined to deformities about the ankle and paralytic in character; but its scope has extended to other parts of the lower extremity as well as the upper extremity. Its prime indication was for the relief of the effects of an anterior poliomyelitis.

Since the effect of this infantile paralysis was found most commonly about the ankle, and since the peculiar anatomical arrangement in this region was especially favorable for the operation, it naturally first addressed itself to de-

formities in this location. Its scope, however, has not only increased, but experience has added considerable in the direction of a better understanding of the details, a knowledge quite indispensable to the success of any operative procedure.

Every joint is surrounded by muscles, the functions of which are two fold: First, the movement of the articular surfaces of the joint in their respective directions; and secondly, to maintain an equilibrium in the movement and position of the joint.

Whenever we have an infantile paralysis we have resulting a complete or partial paralysis of certain groups of muscles. Usually this paralysis is in the majority of cases confined to the lower extremity, especially the ankle. Where the paralysis is extensive the case is perhaps not suited for any transplantation. Where, however, it does not involve all the muscles, much can be done to improve the condition which confronts us. If the tibials are paralyzed the ankle is given over to the peronei, and we have the foot everted, because the equilibrium has been disturbed. If the peronei are paralyzed we have the foot given over to the tibials and an inversion of the sole instead of eversion. Instead of tenotomizing remaining tibials or peronei or resorting to an apparatus, we conserve the remaining muscular force, and by transplantation distribute it in such a manner as will most perfectly restore the disturbed equilibrium.

In dealing with paralytic deformities we have two problems to solve: First, determining the extent of the paralysis; and second, the most economical distribution of the remaining muscular force.

The extent of the paralysis, as well as the condition of the remaining muscles, is determined by electrical reaction and by careful observation of the case. Although the operations on the full-grown have, on the whole, been attended with good results, too much time should not elapse before the transplantation.

Vulpius has collected thirty-three cases, exclusive of twenty-one of his own, that have been operated upon. Sixteen of these have been performed by Drobnik, four by Goldthwait, and the remaining thirteen by eleven other surgeons. The two youngest subjects were each four years of age; the oldest were, two at nineteen years and one at twenty-four. The majority were between six and fourteen years. Of the thirty-three cases, two were in the upper extremity, one of which was traumatic and the other spinal in its origin.

In fifteen of these thirty-three cases the result was referred to as *very good;* in eleven the result was referred to as *good,* or very much improved; in six cases it was questionable, and in one it failed. This does not include the cases operated upon by Vulpius and others.

The range of usefulness of this procedure is best illustrated by a few cases taken from the list collected by Vulpius.

"Extensor halluc. longus transplanted to the extensor digiti with very good results."—*Drobnik.*

"Half of the flexor longus digitorum and peroneus longus transplanted to the tendo Achilles with very good results."—*Drobnik.*

"Half the tendo Achilles united with the divided peroneus longus with good results."—*Winkelman.*

"Half of the tibialis anticus transplanted to the extensor digitorum in two cases with good results."—*Drobnik.*

"Peroneus longus transplanted to tendo Achilles; peroneus brevis to flexor longus; peroneus tertius and half the extensor digitorum to the tibialis anticus; result very good."—*Goldthwait.*

"Tibialis anticus split and one-half transferred to the peroneus tertius with very good result."—*Goldthwait.*

"Transplantation of a flap from the gastrocnemius to the peroneus with good result."—*Lipburger.*

"Peroneus longus united with the tibialis anticus with good result."—*Ghillini.*

"Extensor digitorum united with the tibialis anticus with good results in two cases."—*Franke.*

In the technique of the operation there are two points that deserve especial emphasis—the asepsis and the method of implantation.

It is highly important that no suppuration should occur in order to not only insure union in the tendonous structures, but to prevent as much as possible any inflammatory adhesions that would tend to interfere with the future freedom of movement.

The method of implantation deserves especial study, for the success of the operation depends mainly upon the judgment exercised in the implantation. The amount of tension or slack to which the tendon is exposed, the angle of implantation and the relation of the tendon to bony prominences, have a very important bearing upon the ultimate success of the operation, and frequently tax severely the judgment of the operators.

The anatomical peculiarities upon which the action of the muscle is largely dependent should as much as possible be preserved in the new arrangement. As a preliminary step to the operation the deformity should be forcibly corrected or over corrected and maintained for some time in this position by the aid of a plaster of Paris dressing. This favorably influences the structures and paves the way for the permanent correction that is to follow. It is hardly necessary to add that the most careful disinfection of the field and adjacent region should be secured. The use of the tourniquet has been insisted upon to overcome the slight embarrassment the presence of blood might introduce.

If the tendons are in close proximity their implantation need not be a difficult matter; otherwise a passage must be prepared by blunt tunneling deeper down and the tendon drawn through. The angle of implantation must be carefully studied or the whole procedure may fail in its results.

There are several methods of joining the tendons, prominently among

which is to pass the implanting tendon through a button-hole in the receiving tendon and sewing it firmly by means of chromicized catgut or fine strands of kangaroo tendon. This has been modified by the use of a second button-hole, by means of which the tendon is, as it were, woven in its new position.

The sheath of the tendon should be opened and manipulated as carefully as possible, and upon completion of the operation accurately coaptated with strands of fine cat gut. The extremity should be protected from active use for four to eight weeks, according to the nature of the deformity. Passive motion, electricity, and gymnastics are invaluable in the post-operative treatment of the case, and should be employed as early as possible after the operation. The immediate results do not indicate the final condition, and experience has shown that the case continues to improve for an indefinite time after the implantation has been performed.

From the foregoing it is apparent that while tendoplasty is yet practically in its beginning, it has yielded enough to produce even in this early period a very promising future. It is admitted that the cases for this procedure must be selected, and that likewise in the performance of this operation the surgeon's judgment will often be tested to the utmost; but in those suitably selected, nothing short of a properly performed transplantation will satisfactorily meet the requirements of the condition.

XI. SOME FACTS, THEORIES, AND FALLACIES IN REGARD TO EYE-STRAIN.

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The fact that eye-strain is the cause of an immense amount of human suffering, and that this suffering can in very many cases be greatly or entirely relieved by proper treatment of the eyes, constitutes, in my opinion, one of the greatest of the more recent discoveries in modern medicine.

The subject of eye-strain as a cause of disease is one that I fear is not fully recognized by the profession; hence this paper, in which I propose to give very briefly some of the prominent facts, theories and fallacies in regard to it.

In the first place, I feel safe in saying that the condition of eye-defect is very general, almost everyone having some of it. Some go so far as to say that there is no such a thing as "absolute emmetropia, a mathematically perfect pair of eyes," in existence. It thus seems that nearly all of us have more or less this burden to bear. It is true that many of us do not apparently suffer from it, or, if we do, are not aware of the cause of our troubles; but that very

many people do suffer more or less in one way or another from this cause I have not the slightest doubt, from my own experience in treating between two and three hundred patients on these lines, with the general result of about 90 per cent. benefited. I am further confirmed in this conviction by the reports of others of larger experience than my own. By way of offering some corroborative testimony to these views, I will here take the liberty of quoting a paragraph from a paper I had the pleasure of hearing read at the last meeting of the American Medical Association by Dr. George M. Gould. He says:

"Even in this day of enlightenment as regards etiology and pathology there are thousands, very many thousands, of patients being systematically treated for functional diseases of the body that are due to diseases of the eyes. There are other thousands being treated for organic diseases of the body which originally were caused by ocular diseases. In both cases neither the patient nor the doctor has the remotest suspicion of the ocular origins of the functional and organic abnormalities. Sneering and top-lofty contempt of the specialist 'hobby-rider' will not change the facts nor lessen the hobby-riding. Moreover, the assertion that the patient has been in the hands of an ophthalmologist of good reputation does not in the least lessen the truth for which I contend."

I can fully indorse the above, even including the last sentence. Several of my patients had previously been in the hands of one or more ophthalmologists of good reputation without benefit. It is no reflection on the profession of ophthalmology to say that some oculists are much better refractionists than some others. We all know that some physicians, by natural aptitude, study and attention to business, become much better practitioners than some others lacking in these qualities. The same may be said of farmers, carpenters, and the various other vocations of life, and why not also of oculists? In fact, the treatment of eye-strain seems to be becoming a specialty within the specialty of ophthalmology, some men being by nature and education especially adapted to the successful study and practice of it. It is a kind of work that requires, besides the necessary skill, time, patience, and the most painstaking care, in order to get the best results.

Among the more common of the diseases often due to eye-strain may be mentioned headache, which is due to this cause oftener than to all other causes combined; vertigo, dyspepsia, constipation, "bilious spells," sleeplessness, neuralgia, neurasthenia, cerebral hyperemia, chorea, epilepsy, insanity, anemia, general debility, and various obscure nervous troubles.

The theory of the way in which eye-defect causes the above and other troubles is that on account of certain connate refractive errors and muscle insufficiencies there is in persons having these defects a strain of the ciliary muscle in focusing images, or of the external eye muscles in fusing them, in order to see clearly, and that this strain is kept up continuously during the whole time that the eyes are open. This constant strain requires the expendi-

ture of a certain amount of nerve force, the power which runs the human system, and on this account the system, having an insufficient supply of nerve energy, runs down, and is thus affected in some one or more of the various ways above mentioned. By proper treatment, by means of accurately adapted lenses, and in some cases by the use of prisms, either in position or by prismatic exercises of the external eye muscles, or by operations on the latter, the patient is enabled to see distant objects without effort, thereby stopping a leakage of nerve force, thus allowing the system to build up and regain its normal condition.

Some oculists contend that no patient ever suffers from eye-strain without having some of the symptoms of asthenopia, such as pain about the eyes, blurring or running together of letters, a watering of the eyes, dimness of vision, a sense of fatigue on using the eyes, a twitching of the lids, a feeling of sand or something in the eyes, photophobia, etc. This, I am sure, is a mistake. While very many persons who are eye-strain sufferers do have some or all of these eye symptoms, some of the greatest sufferers I have seen have not had a single one of them. I can readily understand why an oculist might take this view, because it is, as a rule, only those persons having some one or more of the above mentioned eye symptoms that consult him. But in my own practice I have found some of the worst kind of sufferers from eye-strain who never even suspected they had any eye trouble whatever until told so, and some of them have required a considerable amount of persuasion before they would consent to have their eyes examined at all.

Others contend that unbalance of the external eye muscles never causes trouble. One eminent oculist of large experience even goes so far as to say, so I have heard, that he has never tested the muscles, and never expects to. I have had several chronic cases of years' duration yield to treatment of the muscles alone, and believe they should be tested in every case. Even in any ordinary presbyopic case the condition of the lateral muscles may afford most valuable assistance in giving a satisfactory correction.

Another popular fallacy is the idea that eye-strain, especially in children and young people, can be properly treated without a mydriatic.

One of the greatest of all the fallacies in regard to this matter is the contention of some that because persons see perfectly well they have no eye-defect. I have been astonished by having some of my patients tell me that Dr. So-and-So, mentioning some good oculist, said there was nothing the matter with their eyes, simply because they could read the test letters at the usual distance. Some of most remarkable cures have been in persons who could see better than ordinary, and had no eye symptoms whatever, so far as they themselves knew. Gould says: "These are just the cases that wreck lives."

I could give the history of numbers of cases I have treated successfully in support of the views here expressed, but refrain from doing so for fear of unduly taxing your patience, having already reported a number at our 1896,

1898 and 1899 meetings. I trust, however, that you will bear with me while again referring briefly to two or three of them, as they illustrate some points contended for in this paper.

CASE 1. Three years ago a farmer, white, 28 years old, married, who had for eight years been going the rounds of the physicians in his locality complaining of dyspepsia, headache, vertigo, insomnia and palpitation of the heart, asked me to prescribe for him. I persuaded him to let me examine his eyes, although he had never complained of any eye trouble at all, and could easily read the test letters at the usual distance. I used hematropine as the mydriatic in his case, and found some hypermetropia, and gave him a pair of spectacles containing spherical lenses to try. A few months afterwards he called, saying, while some better, he was not much improved. I then used atropia with him, and found he had, besides his hypermetropia, some astigmatism, and gave him a cylindrical correction for the latter, and after that he mended rapidly, was soon able to go to work, and within a year got entirely well, having gained in the meantime about 30 pounds in weight. The fact that the first pair of spectacles, correcting only his hypermetropia, failed to relieve him, I think fully eliminates suggestion as a factor in his cure. It also tend to show that hematropine is not a sufficiently powerful mydriatic in all cases.

CASE 2. A white man, age 44, married, also a farmer, without the use of a mydriatic, seemed to have no refractive error, but had four and a half degrees of esophoria (eyes inclined to turn in—weak external muscles). Eight years ago I gave him simply a pair of prisms, base out, which he has worn constantly since, with entire relief to his headache. He has also improved in general health, and gained about 15 pounds in weight, and for several years now has been able to work on his farm, a thing he had for years before he got his glasses been unable to do. This case, I think, together with several other similar ones I have successfully treated by the same methods, clearly shows that unbalance of the external muscles may cause trouble.

CASE 3. A married lady, age 23 years, the wife of a physician, had since girlhood suffered from very severe spells of sick headache, occurring as often as once or twice a week, sometimes keeping her confined to bed for two or three days of that time. In July, 1895, I adjusted a pair of spectacles for her, and, excepting two slight spells soon afterwards, she has had no headache since. She had been in the hands of a good refractionist, and atropia had been used before I saw her, but the opinion was given that her headache was not due to eye-strain, as her refractive error was too small to cause it. Since then I have seen many patients benefited by correcting even smaller errors than I found in her case.

"Seeing is believing," and my convictions in this matter are based on actual results seen in my own practice. Those who have not seen for themselves the satisfactory results of eye treatment cannot, of course, so fully

realize the benefits derived from it as those who have. There are, however, some other considerations bearing on this subject, which, while not so conclusive in themselves as the facts already given, seem worthy of some notice in this connection, as they relate to matters which each one can observe for himself, and may in this way serve the useful purpose of causing more attention to be paid to this important subject.

You have all perhaps seen or heard of persons who have been headache sufferers in early life, but have ceased to suffer from it after middle age. The powers of accommodation at the latter time of life have usually so far failed that these persons are unable to read without glasses. In other words, they have lost the power to some extent, at least, of straining their eyes, and if there is no muscle insufficiency, but simply a refractive error, they get rid of their headache. If, however, there is an unbalance of the external eye muscles, the headache may continue through life, as we find some cases do. No other hypothesis that I know anything of so satisfactorily accounts for these cases as the eye-strain theory.

The same explanation may perhaps account for the fact that many thin persons begin to increase in weight at or about this age.

Much of the benefit derived from the "rest cure" is probably due more to the rest given to the eyes than to any other one factor in the treatment. The patient, being put to bed in a darkened room, and not allowed to use the eyes for close vision for any purpose at all, not even to read a letter from home, is fed, rubbed, etc., for several months, and the treatment often appears quite successful; but, if I am correctly informed, many of these patients soon relapse on going out and resuming their former way of living, and this is just what might be expected if their ailments are caused by eye-strain, as doubtless many of them are.

XII. VISUAL PERIMETRY.

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Visual perimetry is so important a means of diagnosis that every practitioner must be familiar with it. Recruits for the army and navy, all employes upon public conveyances, watchmen, and all persons who frequent the thoroughfares of populous districts, or cross the lines of travel by land or water, need a wide field of vision, without which they are not only in danger as to their own personal safety, but they endanger the lives of all who depend upon them for safe conduct in traveling or moving about.

From the crude and unscientific method of having the patient gaze into

the surgeon's eye whilst the latter moves his hand so as to describe a circle before the patient's eye, noting at what points the hand may be invisible, to DeVecker's blackboard method of registering, a considerable advance in accuracy of measurement was secured.

In later years the curved instrument, which, being revolved so as to describe a half sphere, divided into concentric rings of regularly graded space, intersected by radiary lines, affords a means of exact scientific measurement of the entire field of perception for light and colors.

There are many forms of perimeters constructed upon this plan, the latest and best one of which is that of Dr. Skeel, which is provided with an adjustable register for the different colors used in the test. This instrument requires precision of method on the part of the examiner, and some degree of cultivated intelligence upon the part of the person examined, to make the result of scientific value.

I have experimented with different forms of perimeters, and have concluded the most practical, and therefore the most useful, is some form of flat instrument, because the field of view in all ordinary affairs of life is practically a flat field. The argument that the greater distance from the examined eye to the periphery of the flat field impairs the value of the test for accuracy of perception is not valid; not even in cases of extreme myopia. The field of perception does not in any case include relative acuity of vision.

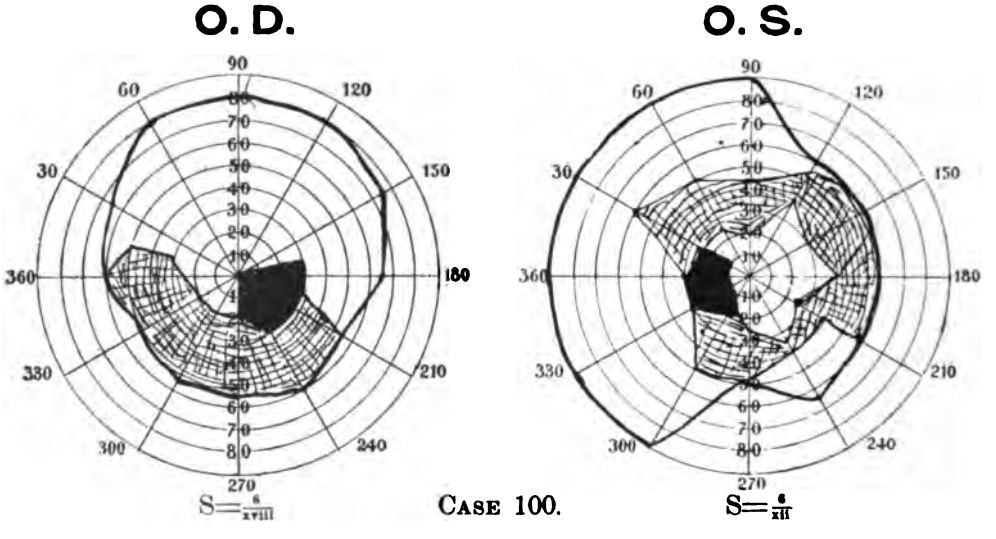
Another point in all the circular perimeters is the aim to have the point of fixation at 10 degrees or 15 degrees from the axis of rotation of the instrument, thus making the center of the field correspond to the center of the optic nerve or the axis of motility of the eye, when, in fact, the center of the field should always correspond to the center of fixation, which resides in the fovea centralis; and, in locating scotomata complete, or incomplete, it is always desirable to portray their relations to the center of fixation; therefore the eye should focus directly upon the center of the instrument. As the revolving perimeter is employed to locate the various meridians, reliance is placed upon a register of small diameter at the axis of rotation, which makes it difficult to establish exactly the meridianal lines in the periphery of the field. A hair's breadth in the circumference of a disc two inches in diameter would amount to 10 or 15 degrees in the periphery of a field two feet in diameter. Another objection is that the bony prominences of the brow, the cheek, and the nose limit the extent of the peripheral portions of the field by cutting off the light. In some persons this makes a series of irregular peripheral contractions in the field, which must be noted on each chart, to avoid erroneous conclusions.

Many of these deficiencies in the ordinary perimeter may be done away with by having a graduated chart divided into meridians of 30 degrees, and concentric circles of 10 degrees each, placing the patient's eye at a point opposite the center, at a distance equal to the radius of the circle representing the chart, and using a bit of cotton wool rolled on the end of a piece of wire as a target. This being moved along the meridianal lines, the location upon

the concentric rings being announced, determines the expanse of the field in that direction. It takes no more time, and generally gives a more uniform and valuable result, because the flat field corresponds to the ordinary view of objects in the common affairs of life.

I have here a chart which I constructed in less than an hour's time. It is drawn upon the surface of a black cloth, ordinarily used for blackboard exercises. The diameter of the outer circle employed is 36 inches. It is divided by meridianal lines of 30 degrees divergence from the center, and cut into concentric rings representing 10 degrees each of the space from the center to the circumference, which, being 18 inches, and the distance from the center to the circumference being 90 degrees, there are, therefore, nine spaces. Now, if the patient's eye be placed at a distance equal to the radius of the whole disc, which is 18 inches, the conditions for accurate measurement of the field of perception are secured.

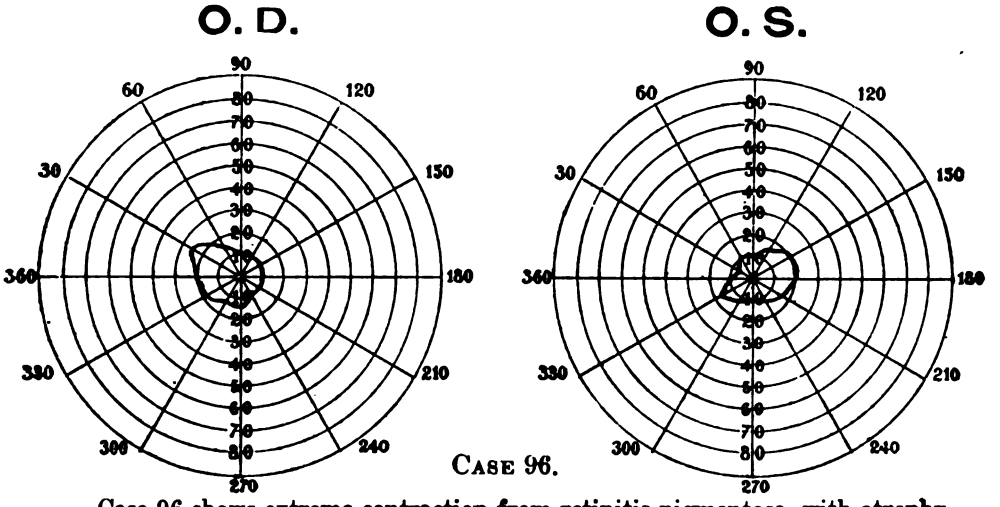
In order to make a proper record of each measurement I have a series of blank charts of the exact form as the one used for measuring, and graded upon an exactly similar scale, so as to secure accuracy of registration. These charts are essential to the correct recording of any observed condition of the patient's field of perception.



CASE 100.

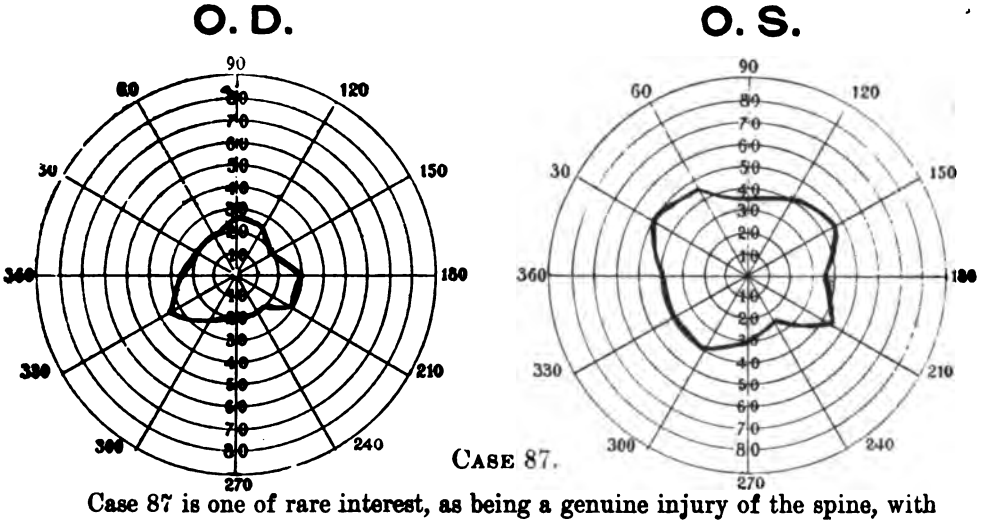
To show its value, I invite your attention to Case 100, in a series of 127, which I present for your inspection. Case 100 is that of a gentleman in apparently robust health, 46 years of age, who found himself unable to read at night, and finally, in a short time, unable to read by the best daylight. He sought the aid of glasses, but the jeweler's optician, who was entrusted with the matter, failed to afford him relief, and so he came to me. On determining the state of his vision I found him, on March 13, 1900, able to see in the right eye six-eighteenths and in the left six-twelfths only. The character of

his field of perception easily determined the cause of his amblyopia. He had been told I would probably recognize the odor of tobacco about him, and so he had used none on the day he came to me for examination; and on taking his field of perception, when I declared tobacco to be the cause of his impaired vision, he was greatly surprised. When I showed him the map of his field of perception he was much alarmed, and promised to abandon the use of tobacco altogether. On examining him again, April 6th, I found him able to see slightly more than six-eighteenths in the right eye and nearly six-sixths in the left. It is doubtful if he ever regains normal acuity of perception in the right eye.



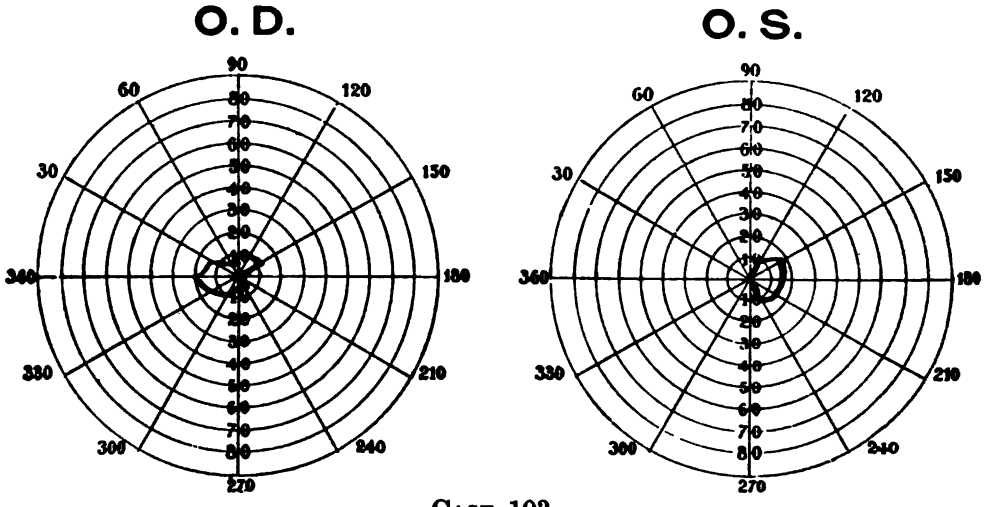
CASE 96.

Case 96 shows extreme contraction from retinitis pigmentosa, with atrophy of the disc.



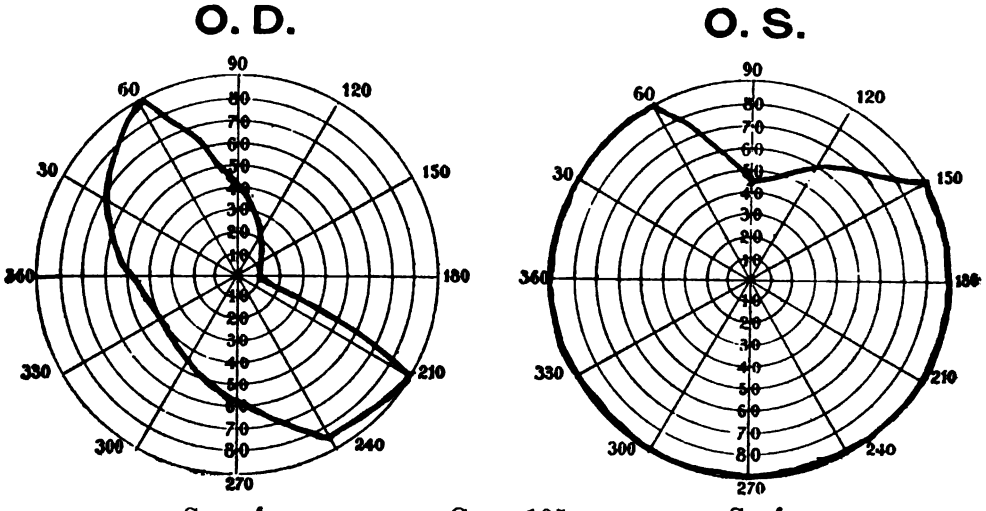
CASE 87.

Case 87 is one of rare interest, as being a genuine injury of the spine, with paralysis of the sphincters, ataxia, rectal disease, etc.



CASE 103.

Case 103 shows extreme contraction of the field, due to atrophy of the optic nerve.



$S=\frac{6}{\text{Card only}}$ CASE 105. $S=\frac{6}{6}$

Case 105 shows remarkable peripheral contraction in a person with extensive peripheral choroiditis in one eye.

XIII. A CLINICAL STUDY OF THE LIVER AS A FACTOR IN ELIMINATION.

GEORGE E. DAVIS, M. D.,

LAWRENCEBURG, KY.

At Maysville, in May, 1898, I presented a paper to this society entitled, "The Physiology of the Liver and the Role It Plays in Digestion and Nutrition." You may deem it strange that I make another inventory of the functions of the liver, and, small wonder, when we remember the triteness of the text. If, however, there is a lack of interest manifested in paying our respects to so esteemed a friend, may our indifference be attributed not so much to a blunted sense of obligation for services rendered, but rather to our ignorance of the mysterious ways he works his wonders.

Standing on the goal of the century, many conditions lend assurance to the hope that we are on the border land of the physiology and pathology of the liver; yet, to our discredit, a great unknown land lies just beyond to survey, and while I recognize that this field of exploration should not be lightly indulged, you will pardon me if I venture a little way.

Digestion, nutrition and elimination constitute metabolism. Metabolism, therefore, comprises those natural functions and processes whereby living organisms maintain vitality and being, and resist the impressions of time and disease. Thus the dynamics of life, beginning with the cell, are the chemical and physical activities required in the transformation of energy, involved in the processes of digestion, nutrition, elimination, growth, reproduction and heredity.

The simple cell, as well as the differentiated cell of the higher or complex organism, acting under normal conditions, has the capacity of responding to the presence of food material by appropriating it to its own growth and multiplication, and of oxygen by yielding to disintegration or waste. The primary and inherent function of all life is a constant change, produced by an affinity for such material as by addition constitutes nutrition or growth on the one hand, and on the other a similar affinity for oxygen, by which oxidation and disintegration are constantly taking place. (1) Under said conditions said processses and functions are termed *physiological.*

However, these cells, acting under abnormal circumstances, as the presence of micro-organisms, are capable of responding in an exaggerated manner in protecting themselves individually, or the organism of which they are a component, against the toxic influences of said micro-organisms. This capacity of the cells for increased activity under adverse circumstances is the *vis medi-*

(1) Journal American Medical Association, July 1, 1899.

catrix naturae. Under said conditions said processes and functions are termed *pathological.*

Therefore, if we would discover the secrets of the doctrine of organic evolution and heredity, and understand the functions of the widely differentiated and co-ordinated cell collections, composing the several organs of the body, we are admonished to study them in the light obtained from the observation of the functions of the simple cell, acting under *physiological* and *pathological* conditions.

The single cell is the simplest form of organized life. Its existence is perpetuated by its capacity for selecting and imbibing such material as is fit for its nutrition and growth, and rejecting that which is detrimental. This constitutes *cell-metabolism.* The human body is an aggregation of these minute organized bodies or cells into a variety of forms or structures, each having some special function. The great structural differentiation attained by the human organism opens up new avenues for invasion by pathogenic agents; however, physiological division of labor has kept pace and provides special functions, not only to protect the organism from toxic influences, but to sustain and nourish it. This capacity of sustenance, of selection and rejection, of assimilation and elimination, constitutes *body-metabolism.*

Therefore, the maintenance of the natural functions of animal life and its vital resistance to toxic agents, resulting either from pathogenic bacteria introduced from without or from the retention of excrementitious products of tissue disintegration within, depends on the activity and efficiency of metabolism, or the processes involved in digestion, nutrition and elimination.

The agents essential for normal metabolism in the development and nutrition of the blood and body tissues are wholesome food, pure water and fresh air, and the proper mechanism of suitable organs, not only to elaborate these agents, but to eliminate the waste products, evolved in their elaboration, from the system. The quality and quantity of the blood depends on the quality and quantity of the food material and air, and on the efficiency of the digestive, respiratory and eliminative organs. The blood is the vehicle by which the food material, after it has been elaborated, is distributed to all the tissues. When wholesome food and pure air have been supplied and the digestive and respiratory mechanism has been normal, the blood truly is the life! But, as the blood is also the recipient of the waste products of disintegration, nature has provided special organs for the elimination of said waste products or other harmful agents that may have gained entrance into the circulation. The kidneys are specially constructed for the elimination of the waste products of disintegration from the blood, which, if retained, would poison the blood, and through it all the tissues, and in this instance the blood becomes the death. And thus, in the blood, we note that life and death tread so close their paths need must touch!

The laws of physiology decree that the integrity and vitality of the body

and its different organs, in the performance of their several functions, are dependent on proper blood supply; and in turn the blood supply is dependent on the proper functions of the organs involved in metabolism; and though elimination is the last step in metabolism, it is not the least important.

I have purposely dwelt at some length on the different steps in metabolism in order to impress their mutual interdependence and the intimate relation between the digestive and eliminative organs. Proper elimination is dependent on proper nutrition, and proper nutrition is dependent on proper digestion. Anything that disturbs digestion will disturb nutrition, which in turn will pervert elimination; and whatever aids digestion favors nutrition and facilitates elimination. Digestion, nutrition and elimination constitute a *cycle* in physiology, and since digestion is the first step in this cycle, it is most liable to primary derangements, and usually is the origin of faulty metabolism around the whole circle, though, on account of the intimate relation of these processes, the converse may occasionally prove true. The derangements of digestion explain the genesis of most derangements of elimination, both of an acute and chronic character, and affords a key to the study of their symptoms and treatment.

The liver is the largest and most complex gland of our complex body, and since it is especially endowed with important *metabolic* functions, I seek to establish its intimate relation as *connecting link* between digestion and elimination.

(2) In my Maysville paper, after reviewing the physiology of the liver, I made the declaration "that the liver is the most important digestive organ of the body," basing the claim first on its biliary function in preparing fats for absorption and digestion, and, again, while the stomach, pancreas and intestines perform the primary digestion of proteids and carbo-hydrates, the liver performs the secondary digestion and elaboration of these materials; truly a most important function, for it has been shown by many reliable investigations that the normal products of primary digestion act as toxins, or foreign bodies, when introduced directly into the general circulation. With equal plausibility, however, I could have made the declaration that the liver, if not directly, through the bile, is, indirectly, the most important eliminative organ in the body, if we are to accept the current teaching of the physiology of the liver in its capacity of transforming the products of disintegration and completing the retrograde change of the substances from non-diffusible colloids into crystalloid, dialyzable materials, before they pass into the kidneys for final excretion. Many investigations, physiological and pathological, make it clear that the hepatic and renal functions are intimately connected, the chief object of the kidneys being to excrete certain products secreted by the liver. Urea is thus formed by the liver, which is returned to the blood, to be finally eliminated by the kidneys. And since urea represents the greater portion of

(2) Medical Record, September 17, 1898.

the nitrogen taken into the body in the way of food, therefore *an analysis of the urine should be a good test of the hepatic condition.* Urea, then, in a measure, constitutes a fair expression of the retrograde change in nitrogenous tissue metabolism, and to that degree possesses definite clinical value.

Renal insufficiency, therefore, proclaims *preceding* hepatic insufficiency—disturbed nutrition and auto-intoxication intervening. Renal inadequacy, functional and organic, has its origin most frequently, if not invariably, in primary hepatic inadequacy, in elaborating the products of both constructive and destructive metabolism. The kidneys first suffer functional disturbance, because said imperfect products are brought to them in a form chemically unable to pass through them, organic change supervening as a result of the long continued irritation occasioned by these incomplete products of metabolism. Especially is this liable to happen to those who indulge overfeeding and lack of exercise, or overwork, mental and physical, producing excessive somatic change, and lack of fresh air, resulting in imperfect oxidation, which further embarrass the hepatic functions. Thus we can easily conceive how the blood, overloaded with food products imperfectly elaborated for nutrition and products of retrograde change, some of which are not completely reduced for elimination, will act as an irritant to the kidneys, finally producing nephritis, with albuminuria, thus interfering with elimination, and later resulting in auto-intoxication.

And need the hepatic origin of renal insufficiency and degeneration hardly tax our credulity when we remember the intimate relation of the liver, through its nerve supply, sympathetic and spinal, not only with the digestive and eliminative organs, but also with the vital processses of respiration and circulation. Moreover, in view of said intimate relation of the hepatic functions with both the digestive and eliminative organs, we more nearly appreciate the prime importance of the liver in metabolism, and understand how the pathology of Bright's disease, with albuminuria, may be traced to hepatic derangements, which cause degeneration, as a consequence of the long continued elimination of products of faulty digestion, resulting from derangements of the nutritive and disintegrative processes, in which the liver plays so important a part; and in many instances, if not all, the liver seems primarily at fault. Again, diabetes mellitus furnishes *positive* clinical evidence of faulty elimination of hepatic origin, and I need hardly remind you that saccharine urine is not due to any morbid condition of the kidneys. What I seek to impress is that sugar in the urine indicates functional hepatic derangement. However, chronic degeneration of the kidneys with albumainuria may prove a sequel to diabetes as a consequence of the constant irritation of the saccharine urine.

The pathology of faulty renal elimination has its etiology, then, most often in primary functional derangements of the liver interfering with digestion, nutrition and disintegration; but the deleterious effects of retained products

of imperfect metabolism are manifested not only in derangements of the kidneys, but in derangements of the nervous system, in derangements of the organs of circulation and respiration, and in abnormal conditions of the skin, etc. Some of the remote effects of the functional derangements of the liver may be noted in impairment of the voice; as witness the recent retirement of Calve from the stage on account of her liver, whose functional disturbances has jarred the tones of a voice instinct with melody divine—the world and art the losers.

The indications for treatment in renal insufficiency, then, are to aid digestion and nutrition and promote disintegration. A careful regulation of the diet and free supply of oxygen by fresh air are of the first importance. The former corrects digestion and nutrition, and the latter promotes disintegration. After these come cholagogues and alteratives, which favor digestion and promote disintegration. Often the best diuretic, aside from water, is the drug that *touches* the liver and arouses it to the performance of both its *digestive* and *disintegrative* functions.

The liver, primarily, by its digestive functions in completing and perfecting the elaboration of the food materials for the development and nutrition of the blood and tissues, and, secondly, by transforming the waste products of disintegration into soluble or dialyzable forms for elimination, is the beginning and the end, the alpha and omega, in the cycle of metabolism—constructive and destructive—embracing digestion, nutrition and elimination.

With the presentation of the arguments I have briefly stated I submit the plausibility of my claims, "that the liver is the most important digestive organ of the body," and "if not directly through the bile, indirectly through urea, is the most important eliminative organ of the body."

XIV. DIABETES MELLITUS: ITS TREATMENT, WITH REPORT OF CASES.

THOS. HUNT STUCKY, M. D.,

LOUISVILLE, KY.

It is not my purpose to give you anything new regarding the treatment of diabetes mellitus, but to give the result of some observations made and the treatment of this unsatisfactory disease. The following definitions have been selected from our standard authors:

First—A disease characterized by the presence of sugar in the urine, high specific gravity, and it is thought to be due to some irritation of the floor of the fourth ventricle.

Second—A disease of the central nervous system, the seat thought to be in the floor of the fourth ventricle, and is dependent chiefly upon disturbed metabolism and faulty oxidation, and is characterized by sugar in the urine, or large quantities of urine with sugar, emaciation, frontal headache, capricious appetite, excessive thirst, and a demand for sweets.

Third—It is a nutritional disease, dependent upon disturbed metabolism, beginning in the pancreas, and characterized by the presence of sugar in the blood, glycosuria, polyuria, and progressive loss of flesh and strength.

The nature of this affection is as yet undetermined. Post mortem lesions of various organs have been found, and this fact has given rise to many views as to its real nature. It is thought by some to be due to a granular atrophy of the pancreas. If the glycogenic function of the liver is disturbed there will be sugar in the blood and urine. The glycogenic function of the liver will be disturbed if there is imperfect oxidation, disturbed metabolism and faulty digestion. An injury to the floor of the fourth ventricle will also cause sugar in the urine. Vasomotor paralysis of the hepatic vessels, following section of the pneumogastric nerve, will cause sugar in the urine. We have also an alimentary glycosuria, where the ingestion of fats is in excess of the power of the liver to properly handle. We have also, in addition to this, sugar produced in the urine by the constant taking of the coal tar derivatives, the phenols, persistent use of sweets and alcoholic excesses, especially the excessive use of champagne. The microbic theory of diabetes is as yet unproven. Pavys' theory is a recent one, and claims that the intestinal villi and liver normally change the carbohydrates into fats; then, if either of these is disturbed in its function, there will be sugar in the blood and urine. Diabetes is undoubtedly related to rheumatism and gout. In imperfect metabolism we have an excess of urates and ptomaines, which we say produces gout and rheumatism. In diabetes the effect of the disturbed metabolism is turned in another direction, and we get glycosuria, polyuria, etc. We have the nerve theory for rheumatism and also for diabetes. In these two conditions it takes a different course. The pathological changes noted show the liver to be enlarged, but this is the case in every condition where the liver has been unable to keep pace with the work put upon it.

The kidneys have exhibited no change, except a slight albuminuria, such as we might expect in every instance of marked disturbance of the metabolic process, and is such a condition as we will find in all degenerative and destructive processes. In chronic conditions we find organic disease of the medulla, and in nearly all cases of tubercular brain disease we find sugar in the urine. In nearly every case of diabetes examined by the writer there has been found gastric dilatation and the history of previous attacks of gastritis. The very fact of the existence of dilated stomach leads us to believe that as a consequence of this interference with gastric digestion there must necessarily be sent into the intestine material not prepared to be handled by

the intestines, and as a consequence of this lack of preparation the development of toxins, ptomaines, and other products of fermentation, producing thereby a marked disturbance of metabolism.

No changes of any note have been noticed in the heart except probably hypertrophy, or changes in the artery walls of the aged. At times in the lung, where the disease has been unusually active and destructive in its nature, gangrene of the lung has been noticed, or the so-called diabetic phthisis. Heredity seems to be a factor in its production, as also do the seasons, March, April and May, in the male sex, between the ages of 25 to 60, the wealthier classes of the Hebrew race. Nervous shock, as a cause; the higher the organism the more susceptible it is to the shock. It is more frequent in the city than in the country. It is rare where manual labor is performed, labor appearing to be the great eliminator to the system. During the months of March, April and May the temperature is constantly changing at this season. We are changing to the vegetable diet, light clothes, open-air life, and are exposed to the damp ground. The system is exposed to conditions producing in it relaxations and contractions. All the above conditions seem to be factors which predispose to the production of diabetes mellitus. The lower classses of the Hebrew race are predisposed because of their meager living, and the expenditure of nerve energy in their desperate struggle to obtain wealth. The wealthier classes, on account of their excessively luxurious habits. All of the above conditions go to produce an imperfect metabolic process in the economy, which in turn leads to diabetes.

It is absolutely necessary, in the treatment of diabetes mellitus, to exclude those cases in which sugar is found in the urine, after attacks of indigestion, nerve excesses, or dissipations of any character whatever, believing, as I firmly do, that many a case has been pronounced diabetic which was only transitory in character. Such conditions as these are relieved by emptying the alimentary canal and placing the digestive apparatus at comparative rest. When the urine shows a percentage exceeding 2 per cent. of sugar, and the same persists for ten days or longer, with the accompanying symptoms of thirst, desire for the carbohydrates, dry tongue, with loss of flesh, we have reason to believe that we are dealing with true diabetes mellitus. It is not here necessary to mention the increased specific gravity, which may range from 1.020 to 1.050; the sweetish taste, and the sweetish, aromatic odor of the urine. The quality may vary from four to five pints, to as many gallons. One case which I report today voided on an average of four gallons per day for a week. Nor is it necessary to state that in every case of boils, furuncles, the urine should be carefully examined for sugar.

Now, as to treatment, I believe these cases should be treated along the same line that cases of gout and rheumatism are, with the addition of giving especial support to the nervous and also to the cardiac system. The first step in the treatment followed by the writer has been thorough emptying of the alimen-

tary tract. I do not mean by this a simple purgative, but by a purgation sufficient so that after frequent observations personally of the stools there is no evidence of scybalous masses, undigested food, and the dejecta have regained their normal color and consistence. Believing, as I do, that the condition may be kept up, and is kept up, by a continuous autointoxication.

Second Step. In every case of autointoxication, if persistent, there is involvement of the central nervous system, manifesting itself primarily by loss of the peristaltic function of the intestine, followed by such a chain of symptoms as we have in every condition of disturbed metabolism. In all destructive processess there is more or less destruction of the red blood corpuscle, producing a marked diminution in their number, a lessening of the capillary circulation, which may probably be entirely nervous. To overcome this, of all the cardiac tonics, nitro-glycerine has proven to be the best. After emptying the alimentary tract, stimulating the nervous system by the excito-motor strychnia, stimulating the capillary system by nitro-glycerine, it becomes absolutely necessary to give a medicament—that is, going to prove a direct sustainer and up-builder to the nervous system, and at the same time exercising a marked stimulating glandular influence. In manganese, iron, opium, codeia, jambul, such an agent has not been found. The agent which has proven to be of the greatest benefit in my hands has been the bromide of gold and arsenic, and I want to state here most emphatically that the only dose of the drug is the minimum one—five drops—and that it should be pushed until the full physiological effect of the drug is obtained, one case under my observation taking 90 drops, well diluted, three times a day, before any marked diminution in the quantity of the sugar was observed.

I have attempted to test the efficacy of the treatment by giving arsenic alone, or the chloride of gold and sodium alone, without any apparent influence upon the quantity of sugar eliminated. I believe by the gold and arsenic we have an agent which is a direct cerebro-spinal stimulant; that stimulates the capillary system through its action upon the central nervous system, thereby being indirectly a heart stimulant. By the combination there is developed an action entirely different from either gold or arsenic separately, or in combination, so far as we know at this time, that by its reconstructive power it lessens disturbances of metabolism, and by its glandular stimulating properties aids elimination; that it feeds the nervous system, thereby checking waste; that by its stimulating power upon the cord, brain, and glandular system, it stimulates digestion. As to diet, I do not believe it necessary to adhere to the strict diet as laid down by our text books, but a good, wholesome, nutritious diet, free from pastries and sweets in excess.

CLINICAL REPORTS.

CASE 1. E. H. G., man; occupation, manager; age 48; weight, 160 pounds. Family history of diabetes. Complaining of pains in the lower ex-

tremities, depressed mental condition, loss in body weight, mouth dry and parched, frequent and profuse micturition, and unquenchable thirst. Specific gravity of the urine, 1.032. Albumin, none. Sugar present.

Treatment. Restricted diet. Arsenauro.

Report of the Urine Examination as Made Weekly and Body Weight.

Time	Twenty-four Hours. Quantity	Specific Gravity	Albumin	Sugar	Weight
	Ounces			Per cent	Pounds
First week,	148	1.040	No.	3	165
Second week,	96	1.031	No.	2½	160
Third week,	82	1.027	No.	2	159
Fourth week,	70	1.026	No.	1½	155
Fifth week,	59	1.026	No.	1½	151
Sixth week,	47	1.025	No.	1	150
Seventh week,	33	1.028	No.	½	149
Eighth week,	30	1.028	No.	¼	149
Ninth week,	29	1.028	No.	Trace.	148
Tenth week,	28	1.022	No.	Trace.	148
Eleventh week,	27	1.020	No.	No.	149
Twelfth week,	27	1.019	No.	No.	150
Thirteenth week,	27	1.017	No.	No.	152
Fourteenth week,	27	1.015	No.	No.	158
Fifteenth week,	27	1.015	No.	No.	159

Patient discharged, with instructions to live according to the restricted diet list for the next six months. He has been for years an inveterate smoker, and has indulged quite freely in stimulants; they, too, must be discontinued.

Case 2. M. A. T., woman; age 36; married; occupation, teacher. Family history unfavorable; three brothers had diabetes. The patient had an attack of influenza about six or seven months ago, and since that time she has been feeling badly; has headache, thirst, a dry, unpleasant taste in the mouth, and at times a "sick stomach." Her rest at night is broken by frequent micturition. She says that her weight has decreased about twelve pounds within six months, and that at times she has pains in the lower part of her back, extending down to the calves. Within the last few months she has had a number of boils, an eruption upon the face, and an itching at times about the genitals and over the body.

The urine examination made the next day: Specific gravity, 1.032; albumin, none; sugar present. Quantity passed in twenty-four hours, 108 ounces.

Treatment. Restricted diet; absolute rest; arsenauro.

Reports of Urine Examinations and Body Weight as Made Weekly.

Time	Twenty-four Hours. Quantity	Specific Gravity	Albumin	Sugar	Weight
	Ounces			Per Cent	Pounds
First week,	84	1.030	No.	1½	138
Second week,	49	1.027	No.	½	136
Third week,	32	1.024	No.	Trace.	135
Fourth week,	30	1.021	No.	Trace.	134
Fifth week,	30	1.022	No.	Trace.	133
Sixth week,	29	1.020	No.	Trace.	133
Seventh week,	27	1.017	No.	No.	133
Eighth week,	27	1.017	No.	No.	134
Ninth week,	26	1.018	No.	No.	135
Tenth week,	27	1.018	No.	No.	137

Reports of Blood Examinations (Microscopically) that Were Made Every Two Weeks.

TIME	Red Corpuscles	White Corpuscles	Hemoglobin (per cent)
First week,	3,985,000	5,760	36
Third week,	4,150,000	6,000	34
Fifth week,	4,450,000	7,350	37
Seventh week,	4,680,000	8,600	42
Ninth week,	4,880,000	8,700	48

Patient discharged after ten weeks' treatment, greatly improved. She has returned to her usual vocation, and will for a while continue upon the restricted diet and arsenauro.

CASE 3. E. H. S., male; age 43; occupation, salesman. Spent several months in Germany at a sanitarium for the treatment of diabetes; came home much improved. A few weeks after his return had a severe relapse, passing about 150 ounces. Specific gravity, 1.042; albumin, none; sugar, over 3 per cent.; weight, 162 pounds.

Treatment. Restricted diet; arsenauro and trional at bedtime.

Report of Urine Examinations Made Weekly.

TIME	Twenty-four Hours. Quantity	Specific Gravity	Albumin	Sugar	Weight
	Ounces			Per cent	Pounds
First week,	180	1.041	No.	3¼	160
Second week,	100	1.038	No.	2	158
Third week,	68	1.026	No.	½	156
Fourth week,	47	1.022	No.	⅛	155
Fifth week,	50	1.020	No.	Trace.	153
Sixth week,	29	1.018	No.	No.	152
Seventh week,	30	1.015	No.	No.	152
Eighth week,	26	1.015	No.	No.	152
Ninth week,	27	1.016	No.	No.	152
Tenth week,	28	1.016	No.	No.	153
Eleventh week,	24	1.017	No.	No.	154
Twelfth week,	29	1.016	No.	No.	155
Thirteenth week,	30	1.015	No.	No.	155
Fourteenth week,	30	1.014	No.	No.	155
Fifteenth week,	22	1.018	No.	No.	155
Sixteenth week,	28	1.017	No.	No.	156

Blood examinations (microscopical) were made every two weeks, the report of which is as follows:

TIME	Red Corpuscles	White Corpuscles	Hemoglobin (per cent)
First week,	4,100,000	6,570	32
Third week,	4,760,000	6,800	34
Fifth week,	4,900,000	6,980	37
Seventh week,	4,950,000	7,350	38
Ninth week,	5,100,000	7,600	40
Eleventh week,	5,150,000	7,680	44
Thirteenth week,	5,180,000	7,770	48
Fifteenth week,	5,250,000	7,900	50

Patient very greatly improved, and is still under observation and treatment.

CASE 4. H. E. B., a man, age 37, American, railroad conductor; consulted me in March, 1899, on account of an irritable bladder. Patient was compelled to urinate quite frequently during the day, as well as during the night. His other symptoms left no doubt as to his real affection—diabetes mellitus. The disease, so far as I could ascertain, dated back for about a year, and seemed to be devoid of further complications. The quantity of urine voided varied from twelve to fifteen pints a day, with an average specific gravity of 1.042. Sugar averaged 4,000 grains for the twenty-four hours. The treatment consisted in restriction of diet and the administration of arsenauro, ten drops of which were ordered to be taken in half a goblet of water three times a day. This dose was gradually increased, until patient took sixty drops three times daily. When this quantity, three drachms, was taken every day, the patient's lids began to puff, and his bowels became loose and caused griping. The medicine was discontinued for twenty-four hours, but again ordered to be taken in fifty-five-drop doses. Patient had taken the fifty-five-drop doses for eight weeks, when I again examined his urine, which contained only a trace of sugar. One month later he was perfectly well, and all vesical irritation had disappeared; in fact, I pronounced him well. I advised patient to report to me from time to time, but to continue the arsenauro for at least six months.

CASE 5. B. R., age 47, a woman, unmarried, American; milliner; thin and emaciated; able to attend to her business. Consulted me April 12, 1899. Patient complained of great weakness, which had gradually increased for several months. She had excessive thirst, and had voided a greatly increased quantity of urine, but her appetite was moderate. Her skin was dry, and she complained of intense pains in the calves of her legs, especially in the morning. There was distressing pruritus vulvae present. The specimen of urine sent to me for examination presented a specific gravity of 1.045, and contained 8.1 per cent. of sugar. I restricted the patient's diet as to starches and sugar, and placed her at once on ten-drop doses of arsenauro, to be taken in a half tumblerful of water three times daily. After one week the dose of arsenauro was increased three drops every day, until she reached its toleration. Physiological saturation was obtained when forty-five drops were taken three times a day. The administration of the remedy was then stopped (as I am in the habit of doing) for twenty-four hours, after the lapse of which it was again ordered to be taken in forty-drop doses. This dose was kept up for six weeks. On July 3d she had gained seven pounds in weight; the pruritus had entirely disappeared, and there were no evidences whatsoever of symptoms pertaining to diabetes mellitus. Patient was advised to continue the medication for at least another six months.

DISCUSSION ON THE PAPERS OF DRS. DAVIS AND STUCKY.

DR. DUDLEY S. REYNOLDS, Louisville: I want to say a word or two on this subject. Nearly every essayist, who refers to organic renal or hepatic disease, says something about foods, and, in the language of my colleague, Professor Stucky, "sweets in excess." Goez many years ago, in his experiments on dogs, found that crystallized sugar, when administered as food, entered the blood unchanged; it circulated in the blood, producing hepatic hyperemia and derangement of the renal function. Moreover, he found that glucose produced an entirely different state; it added greatly to the volume of the lymph stream, deranged the glycogenic function of the liver, and produced glycosuria. This led Eckland to conduct a series of experiments with reference to the probable cause of diabetes mellitus. He showed that it is the yeast cell, which buds in the liver, that disturbs its function. At first it causes polyuria, and subsequently that kind of malnutrition characterized by polyuria and glycosuria; in other words, all of the phenomena of diabetes mellitus. He found the yeast cell, such as is found in ordinary bread made by the baker, does not suffer by baking even until browned. In the beer-drinker he found that the yeast cell gets into the liver, and subsequently into the kidney. He likewise found that those who eat berries, the pericarp of which is made up of young yeast cells, arranged in palisade form, which includes the strawberry, the raspberry and blackberry, were more liable to diabetes mellitus. It is generally understood that no one can swallow the skin of the cherry without paying a penalty in abnormal fermentation of the gastro-intestinal tract. People who eat strawberries, raspberries, blackberries and yeast bread, and those who drink beer, are much more liable to have diabetes mellitus than those who avoid such food and drink.

The glucose produces other forms of malnutrition quite as disastrous as diabetes mellitus, but it seems difficult to persuade people that palatable dishes are often unwholesome foods. Doctors too often consent to "just a little" dessert, yet warn the patient against free indulgence.

DR. R. ALEXANDER BATE, Louisville: I think investigation bears out the statement made by the essayist that diabetes mellitus is a disorder of malassimilation. Those cases which result from cerebral irritation suggest the etiology. It has been shown experimentally that when the floor of the fourth ventricle is irritated or punctured sugar is found in the urine. It has also been found that this irritation increases the circulation, and in all probability there is no derangement of the glycogenic function of the liver, or any alteration in that respect, but an increased quantity of blood passing through the liver absorbs an abnormal amount of glycogen, producing an excess of sugar in the blood, which, when greater than 3-10 per cent., is manifest in the urine. In all probability this irritating material, the products of incomplete oxidation, so alters the caliber of the blood vessel, or possibly irritates the blood centers themselves, *that it causes this increased blood flow*. I think it is possible that these incomplete products act in that way.

DR. STUCKY (closing the discussion on his part): I have nothing special to say, except I am very much obliged to Dr. Davis for confirming the view expressed in detail in going into cell life in the building-up process. I desire

to make this point before taking my seat: That the only dose of a drug is the minimum dose; that there is no maximum dose. It is the degree of tolerance which the individual exercises for that drug, and, as I stated in my paper, I started with ten drops, and secured in one case the full physiological effect of the arsenic, as manifested by puffiness, intestinal and gastric discomfort; and yet another patient was taking ninety drops three times a day without any apparent discomfort whatever. The same holds good with all drugs, and I think the law laid down in our text-books that the dose is from one-eighth to one-half is unfounded.

DR. DAVIS (closing the discussion): It is very dangerous to insist on one certain cause as being absolutely essential to produce one certain result. I would not assert that the liver is always primarily at fault in nephritis, in perverted elimination, much less urge that nephritis is universally contingent on preceding hepatic disturbances. My contention is that antecedent hepatic derangements are a primary factor in most cases of faulty elimination and renal insufficiency. What I seek to impress, by again reviewing the functions of the liver, is the important role it plays in the cycle of physiological processes embraced in digestion, nutrition and elimination, usually denominated by the term metabolism, and to remind you that pathological conditions affecting the first and second steps in this cycle, or digestion and nutrition, must necessarily prove an etiological factor in producing morbid conditions in the last step of the cycle or elimination. It is interesting to note the mechanism of physiology, how the body is builded, and vital resistance is maintained. Metabolism embraces all these processes, and therefore it is through metabolism that the body is nourished and the phenomena introduced by disease are modified, suppressed or eliminated. As indicated in my paper, the liver sustains a most important and intimate relation to metabolism; in fact, serves as a connecting link in the several steps. It perfects the first step, or digestion, in constructive metabolism for nutrition of the blood and tissues, and completes the second step, or disintegration, in destructive metabolism, transforming the waste products of nutrition into soluble substances preparatory to the final step in metabolism, or elimination.

XV. AN X RAY BURN, WITH PRESENTATION OF SUBJECT AND PHOTOGRAPH.

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LOUISVILLE, KY.

This paper will be devoted to the history and treatment of an X-ray burn, with no attempt at going into the etiology and histology or a review of the literature of the subject.

I am indebted to Dr. Ap Morgan Vance (Louisville Journal of Surgery and Medicine, March, 1899) for the account of the surgery of the case, and to the patient himself for the conditions which preceded and followed the use of the X-ray apparatus up to the time of his visit to me.

On October 30, 1898, Dr. C. C. Godshaw, of Louisville, was shot in the abdomen by a drunken negro coachman whom he had befriended. The bullet entered two and one-half inches above the umbilicus, and one and one-half inches to the left of the median line. The patient did not fall, but walked 100 feet immediately after being shot. Within the hour the patient was at St. Joseph's Infirmary, with Dr. Vance operating. The incision was made to the left of the median line, with the bullet wound as its center, and continued up to the ensiform cartilage, as the wound made by the bullet was discovered to be from left to right. A perforation of the stomach was closed with cat-gut, Lembert interrupted, and afterwards continued sutures being used, the last named to brace. There was a long wound near the lower border of the duodenum, three inches below the pylorus, evidently the wound of exit, with the peritoneal covering seemingly lost for quite an extent around. This was carefully closed by Lembert interrupted sutures through muscular and submucous coats, the lesser omentum being reflected over the gut where the serosa was lacking.

The jejunum was much distended with blood, and the bullet had evidently barked it in its passage, one point showing loss of peritoneum and slight bleeding. No other wounds were found. Irrigation with normal salt solutions soon removed remaining clots, with some pieces of clothing, which came from back of liver.

After closing the abdomen with interrupted silkworm-gut sutures, a glass as well as gauze drain was placed between the stomach and liver back to the posterior abdominal wall, the gauze being covered with rubber tissue. The glass tube was removed at the end of fourteen hours, the gauze after twenty. On the fifteenth day the patient returned home, without having taken a single dose of medicine after leaving the operating-table. At the end of four weeks the patient had returned to his practice as well as ever.

The bullet, however, had never been found. It was a question as to whether it was still in the cavity or in the posterior muscular region; or, as the patient seems to think, it had passed out in the stools while he was still in the infirmary. To determine this point the patient very wisely, I think, permitted an X-ray photograph to be taken on May 16, 1899, just a year ago, and seven and a half months after he was shot. Let me remind you that five weeks after the operation he felt as well as he ever had, and had attended to his large practice, as he had been doing for twenty-five years previous. His health in the interval had been perfect.

Dr. Godshaw is a close observer, and for the history of what followed up to the time when he came under my treatment I will confine myself largely to his own written statement, or its substance. The time of the exposure was fully thirty minutes. The only result obtained was a living external photograph and fac-simile of a Crooke's tube. As far as the location of the bullet is concerned we are just as wise as we were before. Five days after the exposure, on taking his bath, he noticed a brownish discoloration of the skin, similar to a sunburn, itchy, and beginning to scale.

Ten days later, or about two weeks after the application of the Roentgen ray, a sluggish ulcer about five by three inches developed over this area, shown clearing in the photograph taken March 18, 1900. This was surrounded by a

APPEARANCE MARCH 18, 1900.

bullous dermatitis, the whole involving an area approximately eight by ten inches. The ulcer proper, although irregular in outline, was sharply defined, and involved the cutis, through the papillary layer. In the center of the ulcer was an oval-formed slough, much elevated, and having diameters, roughly two by one inch. This necrobiotic mass was dirty, yellowish brown in color, very tightly adherent, dry, and on its surface uneven. Around it was the area de-

nuded of skin, covered with serous and purulent discharge. Surrounding this was the reddened, angry area, involved in the dermatitis, with blebs appearing from time to time in size varying from a split pea to a small cherry.

During this time, to use Dr. Godshaw's words: "No language can describe my pain, suffering and mental worry. I feared at times I would become desperate. My general health suffered, and a neurasthenic condition developed. * * * I was rendered unfit for practice, lost all energy, and was depressed and despondent. My sleep was irregular and disturbed, and I was compelled to lie upon my back. I lost greatly in weight."

The following is, in the rough, the treatment which Dr. Godshaw received at various hands. In justice to those whom now and again he consulted, I will say that I believe he did not place himself sufficiently long under the care of any one of the able men he sought out, and was rather inclined to seek relief from any one who might offer what appeared to him a plausible suggestion. I can the more readily believe this, when I recall the wretched mental and physical condition he was in when I first saw him in December, 1899. When the brownish discoloration appeared soon after the exposure he dusted boric acid on. Later, when the slough appeared, an attempt was made to dissect off the necro-biotic membrane. The parts were dressed with subnitrate of bismuth and boric acid, balsam of Peru and castor oil (which caused intense pain), and subgallate of bismuth.

On the 10th of June, 1899, he began to use orthoform as a dusting powder, and continued its use alone, or with other measures, until February last, using up more than five ounces during this time. It afforded him such relief that he often had recourse to it several times a day. I am inclined to the belief that, although it relieved pain, it increased the dermatitis and retarded granulations. Later, on his own responsibility, he used over an ounce of protonuclein, following the circular directions, with no benefit. Bovinine was tried by him also on the advice of a brother physician, with equally unfavorable results.

After some correspondence with a physician of considerable renown in Philadelphia, he tried a 12 per cent. salicylic acid—diachylon salve with carbolic acid—and this, he thinks, irritated the ulcerous region and caused him such pain that he was glad to relegate it to the other unsuccessful applications. Hot and cold compresses and flaxseed poultices, he declares, were given trials sufficiently long to test their efficacy, but with not one of them did he notice the slightest improvement in the appearance of the ulcer, the slough or the surrounding dermatitis. The same can be said of resinol. Orthoform alone gave him relief from the pain for several hours.

Dr. Godshaw came to me in December, a victim, so to speak, of orthoform, and having recourse to its analgesic properties whenever the pain he suffered from called for its use. This was several times a day. His ulcer was about as described, the bullæ disappearing and reappearing from time to time. The

marginal cicatrices will give a fair idea of the surface covered by the ulceration. The central slough was so tenacious and its attachment so deep and firm that pushing and pulling on it did not even move it. I at once tried dry dressing, using iodoform, and afterwards nosophen in powder form. Later, and with the idea of hastening the detachment of the slough, I tried diachylon ointment. No favorable results were obtained. The patient, in order to relieve pain and to avoid the use of morphine, which was never given him, added sufficient orthoform to accomplish his purpose. With whatever I gave him the dermatitis persisted, and even with diachylon the recurrence of the blebs were noted.

Finally, on the 11th day of February, I had recourse to skin grafting. At his own home the patient first took a hot soap and water bath; then he was put to bed, and the site of the ulcer and surrounding skin sprayed liberally with dioxide of hydrogen. This was washed off with sterilized water, and afterwards with a normal saline solution, hot. Fourteen small skin grafts, the results of the subdivision of three pieces of skin taken from a sterilized arm, were transplanted on the affected region, eleven on the ulcerations surrounding the necrotic islet, and three at the junction of the islet with the secreting wound. The whole area was quickly covered with rubber tissue, previously kept in alcohol; this in turn covered with layers of gauze, on which were layers of absorbent cotton, and the whole kept in place with sterilized bandages. The site was inspected at the end of forty-eight hours, and again two days later. It was found that at least nine of these grafts had taken firm hold, and were islets of new tissue.

During these four days the patient was free from pain, almost for the first time since the occurrence of the burn. He remained abed for two weeks. After the fourth day the wound was washed with dioxide of hydrogen, sterilized water, then nosophen powder was applied, and the rubber tissue, and finished as already described. From the time of the grafting there was no more dermatitis. Granulations appeared, and the central slough loosened, healing from below as it did so and disappeared, occasionally with the assistance of the scissors and pincette. The most interesting point was the entire disappearance of the pain. In the two to four weeks that followed the grafting the patient picked up eleven pounds of flesh, ate well, slept well, attended to his practice, and his normal disposition returned. It must not be forgotten that this was preceded by two weeks' complete rest in bed.

The only variation of the above treatment has been caused by the tendency of the nosophen to form a membrane, strongly adherent, and this was part of the wound. When this occurs I use boric acid instead and the membrane disappears. Internally, I have given him nothing during the whole course of the treatment.

XVI. ALKALOIDAL MEDICATION—WHAT IT IS, AND WHAT ARE SOME OF ITS ADVANTAGES.

FRANK L. LAPSLEY, M.D.,

PARIS, KY.

It would seem—in fact, it cannot be doubted—that the century just drawing to such a propitious close will have witnessed a most marvelous change in scientific thought. Medicine and surgery have shared no less equally with other activities the change. Thousands of men, classically educated and scientifically trained, are daily working in the fertile fields of medical and surgical sciences. No single plant in that field is the exclusive product of any one worker. Some prepare the soil, others sow the seed, while others cultivate, and still others gather and present the ripened product of their labors to the profession at large through the various societies and the medical press. Any one without the others would be so helpless that all progress would stop with his first feeble efforts. At this stage of our medical existence the science of medicine has much to feel proud of. In most of the branches it has kept pace with science in general. In this century have lived Morton, Sims, Lister, Pasteur, and a host of others whose names are indelibly written on the scroll of fame, and whose good works will go on for all time.

The microscope has opened a new field and proved many a doubtful point. It has brought histology and pathology to their present high state. It has also brought from their obscurity the bacteria of disease. Wonderful, indeed, have been the strides in surgery and surgical technique.

Electricity has lent a helping hand in alleviation of human suffering, and therapeusis has almost been revolutionized.

None now in the profession will see the close of the twentieth century, but let us hope that those who will be in the profession at that time can feel as proud of the twentieth century as we do of the nineteenth. This leads me to a brief consideration and a bird's eye view into the field of medical therapeutics, known as Alkaloidal Medication. What is it? It seems to be a phase of medicine that has spread very rapidly through the ranks of our profession at large during the past few years; yet its advocates are not claiming that dosimetry is a new system, or that it is a complete practice. The granules are the active principles of plants which have been used for ages in cruder form, and are made for the purpose of convenient dispensing and of assuring accurate doses. That they contain accurate dosage is shown by the fact that uniform results are almost always obtained. The idea originated from Professor Burggrave, of the University of Ghent, one of whose precepts was, "To acute diseases oppose acute treatment; to chronic diseases, chronic treatment."

If we should for a brief moment revert to the time of our grandfathers in medicine, and from the shades of the land of immortality recall them, our imagination would picture them standing by their well-filled saddle-bags, redolent with herbs and roots. With respectful silence we admit these old methods have stood them well in many a stubbornly contested case, and with infusion and decoction, emetic and purge, laxum and strictum, they served their age and generation; but it would seem now that the age of medicine and surgery in which we live and practice is the ideal one. First came the herb, then the tincture and extract, then the last link in the chain—the alkaloid. Recognizing that our forefathers gave the same medicine we do, but their doses were large, nauseous and rank; ours are smaller, but not fully divested of objection.

I am not prepared to lay claim to the fact that with the alkaloid you can jugulate or cut so very much shorter most diseases, as many enthusiasts are doing, for if this is true it will prove a great satisfaction, at least from a scientific standpoint. Thus, as I have indicated, has modern therapy taken a step far in advance, and has made wonderful strides in the direction of the healing of the nations.

Our great pharmaceutical establishments have placed upon the market and before the profession a vast array of elegant tablets, tablet triturates, elixirs, wines, syrups, etc., and the labors of our analytical chemists have separated, step by step, the cruder and more useless parts of the drugs from the potent and useful, and this has led up to the special feature under consideration. We must not for a moment suppose that in the application of this system we can dispense with our diagnostic powers, or with close observation of clinical facts. In alkaloidal treatment, as in other lines of scientific work, success comes only to him who works and uses ceaseless vigilance, and by giving close attention to our cases, and every clinical fact its full importance and weight; having done this, and using the alkaloids in a proper way, we will certainly observe their efficient application. However, I would not have you think I advocate the use of alkaloids to the exclusion of every other treatment. Far from it; for there are a number of useful medicines among the Galenics that have not as yet had their alkaloidal elements isolated.

There is not a physician to-day who is not, to a certain extent, familiar with alkaloidal therapy; for each one uses and swears by quinine, morphine, strychnine and atropine; yet what are they as compared to the barks and shrubs from which they came. So are all the other alkaloids as compared to their cruder forms.

In enumerating some of the advantages of this form of medication, I name: First, accuracy of dose and certainty of effect. (When you administer any of the old tinctures or fluid extracts, does not every observant physician know that different samples are as variable as the wind? Many times has a cumulative effect been brought about in the system by the use of old, crude,

and often insoluble drugs, and sometimes even serious and fatal results have followed.) Second, smallness and pleasantness of dose. Third, convenience of carrying in the pocket. And fourth, as claimed by many, the great certainty with which most diseases can be jugulated, or cut short. This, at a glance, appears to cut short the remuneration to the physician, but this in the end would pay from a humanitarian standpoint, if not from a financial, and doctors have always been good humanitarians and bad financiers.

The prime object is to combat disease with medicines of fixed and accurate medicinal value, and with the smallest practical dose; the minimum of the drug to be administered, the dose to be repeated every 15, 30 or 60 minutes, as the judgment of the physician may direct, till the disease is under control. To insure the most rapid results, as is best in all internal administration of drugs, I would advise giving in aqueous solution, dissolving each granule in a teaspoonful of water; this is for adults; but my usual method is administering them without dissolving. For children I use one granule for each year of the child's age, and two or three additional dissolved in twenty-four teaspoonfuls of hot water, giving a teaspoonful every half to one hour, till the desired results are obtained. For example, I have a case of high fever, no matter from what cause. I prepare a solution as above of the aconitine granules, 1-134 grains, and direct it to be given frequently to the point of subsidence of fever, then not so often; at same time using such other remedies as your judgment may dictate. To children, especially, this method has much to commend it, as there is an absence of taste. Another feature not to be overlooked is the fact that many times it is advisable to keep the attendants—or, if old enough, the patients themselves—busily employed. This is at once obvious. None of you in this age of modern medicine uses crude cinchona bark; none uses crude opium, or the seed of strychnos nux-vomica. As I have said, quinine, morphine and strychnine are familiar to us all, and could be termed the advance guard of alkaloidal medication. I shall not dwell at length on the many others, such as aconitine, digitaline, hyoscyamine, caffeine, ergotine, podophyllin, bryonin, and a host of others, all of which have been tested and not found wanting. Of atropine you who have had experience in the treatment of the eye can testify, but in recognizing it as a hemostatic, try it in the next case of incoercible uterine hemorrhage, or in bleeding from the lungs. In answering how it does so, I reply, by dilating the capillaries and letting the patient retain, instead of lose, the blood. Codeine, an alkaloid of opium, and emetine, an alkaloid of ipecac, occupy a high place in the treatment of coughs. I notice also that just now codeine is occupying a pretty high pinnacle in the market.

So the line runs throughout the materia medica, and to the observing mind there is present everywhere a breaking up of old associations and ideas, and there are many who, looking into the dawning of the new century, proclaim that there is to be but one great science of medicine.

XVII. A REPORT OF SEVEN OPERATIVE CASES OF APPENDICITIS, WITH REMARKS.

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This group of seven cases of appendicitis was not selected for report because they were unusual, unique or anomalous, but for directly the opposite reason, viz: that the phenomena and conditions common to the disease were observed in them. The history, clinical features and actual pathological condition observed were not alike in any two of these cases, but nearly every variety, type and stage are to be found in the group.

CASE 1. Miss V., age 17, a well-grown, ruddy-cheeked, sturdy girl, of a well-to-do German-American family. When first seen on the 21st of last September, had a temperature of 102 1-2, pulse 90, a heavy white fur on tongue, edges and tip very red. Headache had been severe for three or four days; nausea and vomiting the night before and all forenoon. There was intense pain at McBurney's point, and boarding of the abdominal muscles rendered palpation negative. The patient was removed the next day from her home in the suburbs to the sanitarium, and on the following morning etherized, when an induration in the right iliac fossa the size of a large lemon could be readily made out. A two-inch incision was made over the mass, and a quantity of fetid, blackish sero-pus poured from the wound. The appendix was raised up, and in it a perforation near the center, which had as completely cut it in two as if it had been done with scalpel or scissors, the distal half hanging by the meso-appendix. A cuff was stripped back, the appendix tied with silk and cut off, but owing to the necrotic and softened condition of the tissues suturing of the peritoneal coat was very ineffectual. The wound was closed with through-and-through silkworm-gut sutures, except space at the lower angle for drainage. The wound soon closed, except a deep sinus the size of an ordinary probe, and four months after the operation the silk ligature, with which I had tied the stump of the appendix, came to the surface and was removed, then the wound was soon entirely healed.

CASE 2. Miss S., age 16, who had experienced for some days the usual (though mild) symptoms of appendicitis, was removed to the sanitarium on October 6th and etherized. I made the usual two-inch incision over McBurney's point, and found the tube on the right side inflamed and softened, and the appendix and meso-appendix inflamed; the ends of tube and appendix were firmly sealed together, this union being severed in raising them up into the wound. The appendix was secured. It is extremely difficult to make a sure tie of the tube at the cornu of the uterus through the small appendicitis

incision; but this patient, being a member of a family who are proverbial hernia sufferers, I felt it my duty to keep the wound as small as possible, and succeeded without enlarging the wound. The wound was closed in the usual way, and in two weeks the young lady was well and had returned to her home. This seemed to have been one of those rare instances in which the tube was the seat of primary infection, and the appendicitis lighted up from it.

CASE 3. Mr. L., age 25, was engaged at his work (electric light trimmer) all day Friday, December 15. He was taken with pain and vomiting that night, suffered until Wednesday, when he was removed to the sanitarium. I made the usual two-inch incision about midway between the umbilicus and the anterior-superior spinous process of the ilium, the foulest smelling gas, pus and fecal matter spurting from the opening. The omentum, cecum and intestines round about were matted together, and were softened and necrotic, with a large gangrenous patch on the cecum.

Three perforations were found in the appendix, which had almost severed at these points, and had to be tied and removed piece by piece. The peritoneal cavity and its viscera were washed and wiped thoroughly, and the cavity left full of hot normal salt solution and drained by a gauze wick. The patient lived for forty-four hours after the operation.

CASE 4. Mr. W., age 22, tobacconist, had suffered from indigestion, nervousness and pain of very varying intensity in the right iliac fossa. His appetite was poor and his rest disturbed, being practically unfitted for business. There was at all times more or less tenderness on pressure over the appendix. He was advised that the appendix was the cause of his ill health. He went to the sanitarium, and I operated on him January 8, removing his appendix. After the second night he slept well, his appetite and digestion improved from the very first, he had no more pain, and in a very short time he was entirely relieved. In two weeks he returned to his business, and since that time has been in excellent health. The specimen in this case contained several quadrangular concretions, which very much resembled small particles of anthracite coal, being perfectly black, very hard and glistening. The largest one of these was situated near the distal end of the appendix, and at a point about one-third of the distance from the end; the lumen was practically closed, and several drops of secretion had accumulated about the foreign body.

CASE 5. Mr. W., age 33, farmer, had been confined to his room about a week, but had not been well, and had been in more or less pain for quite a while; had not stopped work, however. A large bulging abscess was found in the right iliac fossa, which felt and looked like the pus would soon burrow its way out if left alone much longer. Had him removed to the sanitarium, and on the 13th day of March, under ether, I made a free opening into the abscess, and evacuated about a quart of pus, clotted blood and shreds of tissue; the cavity was washed out thoroughly with hot normal salt solution. Owing to the softened condition of the necrotic tissue, which had most effectually

walled the abscess off from the general cavity, no persistent or critical search was made for the appendix, but it seemed to have been completely obliterated; the shreds and clots which were washed out with the pus were probably the remains of it. The wound was packed with iodoform gauze and left wide open, no stitches being used. Under the constant washing and repacking the large cavity gradually filled up, and in three and one-half weeks was practically closed, and the man returned to his farm.

CASE 6. This patient was a little girl 9 years old, whom I drove forty miles in the country to see, and on whom I did a nineteen-minute operation by an ordinary coal-oil lamp at midnight. This child's attack was sudden and severe, signs of collapse supervening in about twenty hours after the onset. When I saw her she was in extremis, breathing 50, pulse 160 per minute. There had been a rupture into the general cavity, with a diffuse general peritonitis well under way. I washed out the cavity as best I could in the brief time in which I had to do my work, left the cavity full of hot saline solution, placed a gauze wick drain in the wound, put the patient to bed, wrapped in a hot blanket, and with hot bottles to her extremities. I started on my return home in about an hour after I finished the operation, but subsequently learned that in a few hours her symptoms improved and she seemed greatly relieved; but in some way, from some cause, after the attendant had removed the gauze wick and replaced another, she became greatly distressed and died ninety-eight hours after the operation. It is quite likely if this little patient had been in a hospital or in the hands of a good trained nurse, skilled and accustomed to the after-care of this class of patients, she would have been saved.

CASE 7. Miss J., age 14 years, gave a history of never having menstruated, and having suffered from nervousness, extreme irritability of the bladder, and for the past six months incontinence of urine. She had had several attacks of pain in the abdomen, to which no special notice had been given, the last one of these attacks of any consequence occurring early in January. She then suffered from nausea, vomiting and severe pain about the umbilicus; however, the spell was of short duration, the severe symptoms subsiding in a couple of days. On March 22 she was taken suddenly and violently ill, with unbearable pain referred to umbilicus and toward the right iliac fossa, accompanied by nausea, vomiting and depression. I saw her on the 25th. She was hysterical, and by reason of this nervousness and pain seemed to be in terrible agony. She had been given morphia right along since the onset of the trouble three days before. The extent of boarding of the muscles of the abdominal wall in this case went beyond anything I have ever seen. There was absolute rigidity of all of the muscles, the slightest touch of the hand causing the patient to cry out with pain. She was removed to the sanitarium on the morning of the 26th, and operated on in the afternoon. Under ether I made an incision about an inch and three-quarters in length, and with my

index finger investigated very carefully to ascertain the location and condition of the appendix. A small trough had been forced by a bit of omentum and the cecum, which by passing two fingers carefully in, hugging the outer wall, I was able to raise up into the wound without disarranging. The softened and leaky appendix was removed in the usual manner; about a drachm of pus was wiped from the site, revealing two points of denudation of peritoneal coat of cecum, which was treated with Lembert suture of fine silk, and the whole washed thoroughly with hot normal salt solution. The omentum was swollen and an angry red, very much resembling a cock's comb, and I felt too uncertain of its integrity to warrant the immediate closure of the wound; I accordingly replaced it, and laid the end of a gauze wick drain down on the inflamed spot, and hung it out at the angle of the incision. I placed the interrupted silkworm-gut sutures and tied them down to the last one on the gauze wick. In twenty-four hours I raised up the dressing and removed the drain, which hung a little as if held by granulations, and, upon finding the wick and wound clean and sweet, tied the remaining suture. The wound was found perfectly healed when the stitches were removed on the eighth day, and the girl was up and going about at the end of two weeks.

Unusual and peculiar phenomena were observed in this case, viz: In the early morning of the third day, after the girl had slept well all the night before, and had been comfortable, hopeful and cheerful for an hour or so, rather suddenly began to complain of dimness of vision; soon she said she could not see the attendant at all, and passed into a mild delirium, crying and talking incoherently at intervals, and in this condition she passed the day. Her pupils were widely dilated, and did not respond at all to strong light, and in the afternoon her pulse quickened to 90, and her temperature rose to 100. I prescribed chloral hydrate and potassium bromide, and after administering two or three small doses she came round all right, slept well that night, and had no other untoward symptom. The girl seems to be entirely relieved; she eats well, sleeps well, is fond of exercise, and is not easily fatigued; all of her bladder symptoms and nervousness have subsided, and she is enjoying excellent health.

Upon appendicitis much has been written, intensely interesting and lengthy discussions have been held in the most scientific medical associations of this and other countries, the master minds in special and general surgery have given the subject much earnest thought, research and investigation; still, I dare say, it has not as yet received the recognition it deserves. It is of paramount importance, because it entails more disablement of body and danger to human life than any other known surgical disease. Morris said some time ago that the chapter on appendicitis was closed. Price says that there is but one thing to do with a diseased appendix, and that is to cut it from the cecum and close the opening in a way that will insure union. All authorities who have to deal surgically with this disease are a unit, in that it has

no medical side in any of its stages; that medical treatment is of absolutely no avail. It is pleasing to note the way in which the laity and general practitioner are rallying to the support of the surgeon's position in this matter. The patient, in many instances, has made a probable diagnosis when the family physician sees him, who confirms it, the neighboring surgeon concurs, and an operation is arranged for at once.

The operation for appendicitis is attractive and fascinating surgery. Its results are eminently pleasing and rarely disappointing. Of all operations within the whole domain of abdominal and pelvic surgery, it is the beatitude. It is the operation of the present and the operation of the future; the man who qualifies and fits himself to do it skillfully and successfully will be found in the front ranks along with the successful, fearless and courageous surgeons of the country.

DISCUSSION.

DR. J. G. SHERRILL, Louisville: This subject is one of the utmost importance to all of us, whether we are surgeons or physicians. There has been a tendency on the part of physicians to treat the subject of appendicitis more lightly than it has been treated by surgeons. I cannot agree with the last essayist in one point that he has made, and that is that the disease cannot be handled or treated in any of its forms by medical means. I do believe that there are slight inflammations of the lining membrane of this organ which sometimes respond to medical treatment. These inflammations are held in abeyance for a time, later to develop and cause trouble. In those cases where the disease has invaded the three coats of the appendix vermiformis, where we have either the ulcerative, the gangrenous, or the suppurative form of the disease to deal with, we are called upon to institute surgical measures. The rapidity with which this disease progresses, and our inability to determine the exact stage of progress, render its early diagnosis of special advantage to us.

The papers we have just heard have laid stress upon this point, and I believe we can well make it a rule to avoid the use of opium in cases in which you suspect an inflammation of the appendix, and can thus greatly aid the early diagnosis and eliminate some of the doubt as to the condition present. When a physician is called to a patient who complains of sudden pain over the abdomen, in a short time becoming localized in the right iliac fossa, and the pain being of a wavy or paroxysmal character, with considerable intensity, it is certainly suspicious of trouble in the appendix; and when we are called to a case of this kind we should not give a hypodermic of morphia, and say to the patient that he will probably be relieved, and then leave him. While this may be an attack of colic or an acute indigestion, still we have no positive means of making such a diagnosis at this stage. We will probably find a normal temperature, or it may be only slightly elevated; therefore, you cannot make a diagnosis between a colicky pain or an effort on part of the appendix to relieve itself of some of its contents, or whether you have an inflammation present. Being unable to make a positive diagnosis, you should not obscure things by giving opium. You do not desire to have the symptoms of the disease obscured in the least, and your first object would be to elicit all the symptoms you can obtain by questioning the patient. Then you apply either hot applications, which will afford great relief, or, as Deaver recommends, the use of cold. Cold

applications, such as the ice-pack, will give relief quicker in the early stages of appendicitis than the use of heat. In my experience I have resorted more to heat than to cold, and I believe in this section of the country we use heat more frequently than we do cold. By using this simple measure we can, to some extent, allay the inflammation, and at least can do the patient no harm. We do not cover up the diagnosis, and are therefore in a decidedly better position to treat the patient.

There are some points in the paper on diagnosis that were not mentioned. I believe volvulus, or ileus, and internal strangulation were not mentioned. I recently had occasion to note the difference between these two conditions. I found a patient suffering with the usual symptoms of inflammation of the appendix. He had been treated by two physicians with hypodermics of morphia. When I saw him he had rigidity over the greater part of the abdomen; there was extreme tenderness, and he complained of great pain. Examination over the seat of the appendix was difficult, owing to the thick abdominal walls and to the rigidity. I placed the patient under an anesthetic to enable me to better examine him, and found no special indication of trouble in the region of the appendix. Upon rectal examination, however, I found a mass in the pelvis. When we find a mass in the pelvis in a case of this kind in the male we are as much at sea as before, because we cannot positively determine whether we have a strangulated intestine or a boggy mass of inflammation; yet we have sufficient information to demand operative intervention. This point should be remembered, that we may have volvulus or ileus producing symptoms similar to those of inflammation of the appendix.

One of the papers directed our attention to typhoid fever, which is liable to be confounded with appendicitis tubercular in character. In a case more or less protracted we will find symptoms of typhoid fever, and the diagnosis is generally exceedingly difficult. We find after the fourth day, as Dr. Cartledge has told you, that the danger from operation is very much increased, owing to the fact that we have the formation of pus, and are likely to have rupture of the abscess into the abdominal cavity, and therefore we should operate at as early a date as possible, in order to get the best results.

There is one statement I would like to question, and that is as to whether we are ever able to get ideal or perfect results in operations for this disease. It is true we do get recovery in a large proportion of cases, but there are cases which develop so rapidly that, operate as soon as we can, or treat the patient to the best of our ability and knowledge, we are not able to get a good result; in other words, we have deaths from inflammation of the appendix following any plan of treatment, and it is one of the gravest forms of trouble with which we have to deal.

DR. AUGUST SCHACHNER, Louisville: I think that discussions on appendicitis in this late day are usually attended with the unfortunate feature that so much ground is gone over that has already been covered, that when a vital point is brought out it is lost in an ocean of details. While the chapter on appendicitis is practically closed, it is not really closed. There are some points that must be brought out and better understood, and they are the ones that Dr. Cartledge dwelt upon, one of them being the question of judgment. Good judgment is the pivotal point in appendicitis. The man who has the best judgment will have the best results. There is a time when to open the abdomen, and a time when not to do so; and the man who knows when to go in and when to stay out is going to have the best results. I believe this is the

key to the whole situation. We can divide operations into those that are done in the first day or two after the onset of the trouble. A diagnosis may not be positively made at first; it may not be made for a week after the onset of the disease. The onset of the disease is one thing, and the diagnosis is quite another thing.

There is another class of cases upon which we operate in the intermediate stage, and a third class in the late period. Another class is where we do a secondary operation, namely: in the catarrhal variety of the disease, where the attack subsides. There has been no suppuration, and in the quiescent period an operation is done. The best time to operate is either in the very early period or in the quiescent period. The man who originated the dictum that a case of appendicitis should be operated upon as soon as the diagnosis is made (if any particular man did originate that idea) has done a good deal for surgery, and such a dictum is all right if it is clearly understood. Those who advocate this dictum say that it is all right, provided the diagnosis is made early enough; in other words, a case of appendicitis should be operated upon as soon as the diagnosis is made, provided it is made early enough. If, however, the diagnosis is made during the second or fourth day, it is a question whether it is best to operate. The question arises as to the third or fourth day. It is in that class of cases that we have a high mortality, so that whether it is best to operate as soon as the diagnosis is made will depend altogether upon *when* the diagnosis is made. If it is made early enough, it is the wisest plan to operate as soon as the diagnosis is made. If, however, the diagnosis cannot be made for three or four days, it is a question which is the best course to pursue. It is the man on the ground, one who has had considerable experience and exercises good judgment who can tell when, and when not, to operate.

DR. J. O. JENKINS, Newport: I was very much pleased with the position taken by Dr. Cartledge in his paper. He spoke of a period in which operation is not justifiable, and I think his position is eminently correct. In the beginning, cases of appendicitis may be operated on with comparative safety, but after a certain period has elapsed it is certainly questionable whether to operate or not. By so doing one is liable to open up a wound which may rapidly become infected; he opens up avenues that should be closed, and he may lessen the chances of the patient toward recovery very materially. I believe there is a field for the medical treatment of appendicitis in certain stages. During an experience of twenty-five years in the practice of medicine I have seen many cases of this disease, but have never had a case operated upon. I think there is too much hurry to operate on the part of a great many. The first period when an operation might prove a success is passed over until we have the formation of pus, and then the injudicious surgeon rushes in, infects the patient and loses him; whereas, if he had waited until nature had thrown a protecting wall around the appendix and shut off the peritoneal cavity from the pus cavity he could have operated with safety.

As to the diagnosis, it is not always an easy matter to make a diagnosis of appendicitis. Usually the physician is called after two or three days' home treatment for colic or constipation, and when he reaches the case it is beyond the first period of operation. He must then bear the brunt of the disease. If he rushes in, performs an operation, and loses his patient, it does not do him any good in his neighborhood. The public are rather set against operations for appendicitis, simply because the results have not been as good as we would like. Out of five operative cases that have come to my knowledge in the last

eighteen months, three of them have died. The diagnosis in all of these cases was made by competent men, but operation was undertaken in the wrong period, just as Dr. Cartledge has mentioned.

I believe, too, that sometimes mistakes are made in this way; than an inflammation around the cecum is called appendicitis, when none really exists. I recall the case of a lady who was operated on with great display for appendicitis. The surgeons—two of them, very competent men—opened the abdomen and said, "Where is the appendix?" There was nothing abnormal to be found. They finally discovered the appendix, lifted it out, found it perfectly healthy, and had to make an explanation afterward. Fortunately the lady got well. She had all the symptoms of appendicitis—pain, and tenderness at McBurney's point, etc. In this case the surgeons were misled. They could not account for the symptoms.

I hope Dr. Cartledge will go still further in the division of these cases into the proper and improper time for operation. I believe it can be done, and we can get closer to the subject. The chapter on appendicitis is not closed by any means. It is still open, and will be for some time to come.

DR. D. G. SIMMONS, Adairville: I would like to ask the essayists if they have ever found any difficulty in differentiating between appendicitis and fecal impaction. I have not heard that subject alluded to. There may be nothing in it. I have not had much experience along that line, but I will say this: that in my work I have seen three cases which I very much feared were appendicitis, but the preponderance of evidence pointed towards fecal impaction. I treated them as such, and the patients recovered after the impaction had been removed. I would like to hear from the essayists on this subject.

DR. F. J. YAGER, Campbellsburg: I feel as though I ought to ask some questions with a view to getting some information. I have had a great many cases of bowel trouble, and I cannot tell you how many cases I have had die with appendicitis; but I believe I have had from three to five cases die with what we now call appendicitis. About six weeks ago I was called to see a patient who, it was thought, had appendicitis. I visited the patient and gave him the benefit of my experience and my judgment. I did the best I could for him. I am glad to hear the opinions of such eminent men who have paid particular attention to this subject. Regarding the three cases I have referred to, I may be mistaken as to the cause of death. I tried my very best to save them, but they died in spite of my efforts. Our knowledge of this subject has advanced so much in the last few years that it behooves us, whenever these cases present themselves, to secure the best men with surgical judgment and operative skill. I believe that if patients with appendicitis are operated on early by skillful surgeons the majority of them will recover. Patients should not be allowed to go on until we have the formation of pus. They should be operated upon, if possible, before an abscess has formed.

DR. J. A. HUMPHREY, Henderson: In regard to the subject under discussion, it goes without saying that appendicitis is one of the most important affections with which the physician and surgeon have to deal, and the conclusion that the chapter on this subject is closed is a very wrong one, in my judgment. Until conclusions have been reached that scientific men can agree upon, and after investigating this subject have determined that this or that measure is the better plan to pursue, the chapter on appendicitis will not be closed. The chapter as regards the diagnosis and management of appendicitis will not be closed very early, for the reason that there will be medical

cases and surgical cases of this disease. There are a great many features that present themselves to the practical physician and surgeon, aside from the pathological conditions that are probably present and those that may be known to be present. By medical cases I mean those that can be managed by the physician. The environment has a great deal to do with the question of whether we will operate in the ordinary or average case of appendicitis or not. For instance, some surgeons tell us that they have gone miles into the country and have operated under unfavorable conditions. Considering the environment of country homes and the lack of hospital facilities and advantages, we cannot afford to say that every case of appendicitis is strictly surgical. It is practically impossible to treat all such cases in a surgical way successfully, so that my friend, Dr. Schachner, seems to strike the keynote, in that it is a matter of judgment as to when and when not to operate. The cases of appendicitis remote from hospitals are the ones that require the greatest amount of judgment. I quite agree with those gentlemen who say that they would like to operate upon every case of the disease that presents itself, providing the conditions are such that the case can be properly handled under those conditions. The appendix being an organ of no special value to the economy, and it is said that a man can get along as well without it as he does with it, why should it be retained? Why not get rid of it? The anatomical structure and the relation of the appendix to surrounding organs and parts are such that in cases of inflammation the appendix is a constant menace as long as it remains within the abdominal cavity. It does not drain itself. Even the simple catarrhal inflammations may result in serious pathological conditions by reason of the fact largely that the appendix is not an organ that can drain itself. Its caliber is small. If the conditions are such that a patient can be handled in an aseptic, scientific, skillful manner, and in view of the fact that the rate of mortality is so low from operative measures, when undertaken early, I believe the safest thing is to remove the appendix. But there are many cases which must be treated medicinally, since there are physicians who view the matter of appendicitis conservatively; and as long as their experience is such that one man will say he will not operate, and another says he will operate, you cannot say that this or that man is not doing what he considers best for the patient. Under these circumstances, therefore, there will continue to be both medical and surgical cases of this disease. I believe that operations should be undertaken when the conditions and environments are such that they can be properly done. I believe this is a correct view of the matter. Operate when you can. If you cannot operate under favorable conditions, then your judgment comes in as to whether you must operate under unfavorable conditions, or whether you will treat the case medically.

DR. R. D. PRATT, Shelbyville: Dr. Cartledge is to be congratulated on discussing this surgical disease in such an impartial manner, and still acknowledging that there are times when it is proper not to operate. I want to speak of appendicitis from the standpoint of a country doctor. The average surgeon sees cases of appendicitis when they become essentially operative, or operation is demanded in order to save life. In general practice we see many cases, comparatively mild, that go on to recovery, but they give us a great deal of anxiety. The question of when to operate is a very important one. We have cases going along in the ordinary way; these may get well. We are called to a case of appendicitis three or four miles in the country, and we cannot visit the patient more than once a day. We visit the patient one morning and find him doing well; but the next morning when we visit him he is nearly dead.

Dr. Cartledge raised the question whether we should operate before the fourth day or during the period of quiescence. I would like to ask him what we are going to do with those cases that progress to the fifth or sixth day, and we get a large abscess formation, with perhaps sepsis developing rapidly, and the patient gradually dying from blood poisoning. The family demands that something shall be done. You have a large abscess to contend with, and if you do not open it the patient will die from sepsis. I am not arguing this question from a surgical standpoint. I do not profess to be a surgeon, but I believe more cases of appendicitis are killed by amateur surgery than are ever saved. If we have a case of appendicitis, or any other grave form of abdominal trouble, except in a great emergency, it is our duty to send for a surgeon to complete the work for us. But there may be certain conditions arise when the general practitioner is justified in opening the abdomen, and in cases of that kind we cannot wait to send for a surgeon. The question comes up in my mind as to the time to operate, and I confess that as far as it is concerned the chapter has not been closed.

Dr. J. G. Carpenter, Stanford: The last speaker said something in regard to the country doctor or the amateur surgeon. Any man who has practiced medicine for five or ten years as a general practitioner may be compelled to operate upon a great many cases of appendicitis, because the appendix has become walled off. It has become encysted; it is adherent to the abdominal wall, and all you have to do is to incise, drain, irrigate, and let the patient get well. You do life-saving, conservative surgery. Surely any practitioner within the sound of my voice can do that. If he cannot do it, then he has no business to be a practitioner of medicine. Should the patient survive this preliminary operation of opening the abscess and draining it, and should there be a recurrence of the disease, when the patient is in good condition you can operate for the removal of the appendix.

A word or two more with reference to the amateur surgeon. Some men who have been practicing medicine for twenty years are not competent to operate. The young graduate just from the medical college should be abundantly able to do so. Any man ought to be able to operate who has a proper knowledge of the pathology in his mind, the diagnostic ability, and the surgical technique to properly care for his patient. We can do life-saving surgery in the country for appendicitis as well as in the hospital with trained nurses. If the environments are poor, we can extemporize and do life-saving surgery. I have done operations in log cabins and have saved my patients. I have operated in a shed, and under the most unfavorable environments in the summer time, and yet have saved patients with the gangrenous form of appendicitis.

One gentleman asked the question as to whether fecal impaction did not simulate appendicitis. I have seen two cases, in which I was called to operate for appendicitis, but which were inflammations of the cecum, with fecal impaction. By repeated high enemata of a half gallon of water every half hour or hour I relieved these patients, and as soon as free purgation began the symptoms of appendicitis disappeared.

Dr. Cartledge (closing the discussion): I have very little to say. With reference to the remarks of Dr. Pratt, in regard to what we shall do with those cases of the third or fifth day in which an abscess forms, I will say that the acoustics of the room were so poor that the Doctor failed to hear what I had to say in my paper regarding this class of cases. The point he refers to is well covered in my paper. I have nothing further to add, except to thank the various gentlemen for their discussion.

XVIII. GONORRHEA VERSUS SYPHILIS.

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The present deplorable, erroneous and distorted conception of the relative amount of evil produced on the human race by these two diseases is slowly but surely dawning on the medical profession. The reasons for this state of affairs are numerous and obvious.

First, in the mind of the uneducated laymen, you will find there always exists a vivid picture of the horrors and disastrous consequences in store for the victims of syphilis. So deeply rooted and universally prevalent is this notion that in the vast majority of cases there is a veritable collapse on the part of your patient when you inform him that he has contracted syphilis. He considers himself, as it were, in the clutches of some all-powerful and unseen enemy, from which he is unable to free himself, and he becomes so despondent that he often tells his physician that he contemplates suicide. In such cases it requires great gentleness and skill on the part of the physician to restore his patient's mental equilibrium. This same individual would, perhaps, look upon a case of gonorrhea as of very little consequence, indeed. Unfortunately (and I say it advisedly) the prevalence of this notion is all too frequently directly traceable to knowledge disseminated by the local doctor, who does not believe in "bugs," and tells his patients that a case of gonorrhea may be favorably compared to the effects of a bad cold.

And again, the bibliography of syphilis is both extensive and brilliant. Some of the brightest minds in the profession have devoted their time and talents to the work of presenting this subject to us in an attractive and comprehensive form, while on the other hand gonorrhea was not made the subject of special investigation until about a quarter of a century ago.

Now, in order to be able to estimate the importance of any disease to the physician we must examine its entire field of action and ascertain as nearly as may be its ultimate effect on the human race. With this end in view, then, keeping before us the above mentioned facts, and having divested our minds of all prejudicial notions, let us proceed to a brief consideration of the history, complications and consequences of gonorrhea.

The knowledge of the fact that there existed such a disease as gonorrhea or specific urethritis is almost as old as time itself; but the profession at large was practically unacquainted with its remote possibilities. Some of the more important sequelæ of this disease were certainly noted, but they were attributed to causes entirely foreign to gonorrhea; for, as I stated before, gonorrhea was not made the subject of special investigation until about a quarter of a

century before. Previous to that time the disease was looked upon as a simple one—one that could be readily cured with astringents and diuretics.

Not until Noggerath took the stand he did in 1872 did the profession begin to realize how serious a disease gonorrhea was (leaving out of the count the possible complications of chronic cystitis, kidney troubles and acute septic arthritis, to any or all of which complaints the man who contracts gonorrhea is liable). He conferred a great service upon medical science when he forcibly alluded to the importance of latent gonorrhea in its relation to the ailments of married women. He held that a latent gonorrhea in man is a continuance of the disease after an apparent cure.

"Though it may not for years be manifest, nor be produced by any kind of excess or stimulating causes, gonorrhea may certainly reappear in a woman who has once been affected. Any excitement of the sexual organs is sufficient to disturb her general health. This chronic gonorrhea is the most frequent of female disorders, and gives rise to most of the minor ailments of women."

The researches and reports of such gynecologists as Lawson Tait, Martin and Olshausen had completely confirmed the correctness of Noggerath's views. Noggerath considered gonorrhea incurable. He believed that when it is apparently cured it really has only become latent, and the wife is almost always infected. She may in this way acquire an inflammation of the mucous membrane, extending from the vagina to the ovaries.

Lawson Tait, in his work on "Diseases of Women," says: "Even an acute gonorrhea is not a matter often to be unhesitatingly discriminated, and I am certain that hundreds, if not thousands, of instances are occurring annually in which serious and even fatal mischief is done by gonorrheal infection, the victims of which are entirely unconscious of the primary infection."

Some of the best authorities who have to deal with gonorrhea among men go so far as to say that it is a disease which is never really cured. As I have had little or no experience with the disease in males I cannot express an opinion on the subject; but, if I may judge of what I know of the disease told me by patients and their husbands, I accept this view thoroughly. I can see no way out of its acceptance to understand the occurrence of large numbers of cases of this terrible disease.

Early in life I heard an eminent surgeon—one of my teachers—say that were he condemned to have a venereal disease, he would rather have syphilis than gonorrhea. I marveled and disbelieved, but now I know that if he included women in his thoughts of the subject he spoke truly. Syphilis is a relatively harmless disease. It will cause discomfort and distress, and even much pain, but the percentage of deaths directly traceable to syphilis is almost nil.

Tertiary forms, such as brain lesions, and all forms of hereditary manifestations which some physicians look upon with so much dread, all yield more or less readily to the appropriate forms of treatment. In the light of my own

experience, as well as that of others, I feel justified in concurring with the statement that "where syphilis kills its tens, gonorrhea kills its thousands, and it would take the combined sufferings of a hundred cases of syphilis to make up for the long weary years of agony of one case of gonorrheal pyosalpinx. Modern gynecologists have unearthed the conclusion that gonorrhea is a fatal and terrible scourge to women."

Mr. Tait considered Noggerath the most eminent man of his time. A man whose purity of intentions, earnestness of purpose and skill in diagnosis put him ahead of any gynecologist he had ever met.

Prof. Olshausen, Professor of Diseases of Women in the University of Berlin, says: "That the gist of Noggerath's monograph contained assertions and conclusions that are trustworthy, and truths which many had dimly imagined, but for which to their full extent no one had cared to make himself responsible."

In speaking of the subject Lydston says: "It needs but a casual survey of the morbid possibilities of gonorrhea to convince one that it is a serious affection. It is an undeniable fact that gonorrhea is the most dangerous of the venereal diseases, for through the medium of its sequelæ and complications this disease is the cause of more deaths than can justly be attributed to the direct influence of syphilis. By comparison, chancroid is essentially a benign disease. Subtract the evil effects of gonorrhea from the list of human ills and the resulting increase in the longevity and happiness of the race would be marvelous."

The gynecological litierature of to-day points with unerring finger to the importance of gonorrheal infection as an etiological factor in the pelvic troubles of the female. The gynecologist and the general practitioner again and again have this wretched picture presented to them:

A young, vigorous and robust woman marries an apparently healthy young man. She goes to her physician some months later, suffering great physical pain and mental distress, having contracted gonorrhea from her husband, who supposed himself cured. And usually this same physician has the misfortune to see his previously healthy patient transformed into a fretful invalid, or sees her subjected to a major operation, in the course of which it may become necessary to rob her of her power of reproduction. This is a sample of the universal testimony of the general practitioner and gynecologist.

Let us now interrogate the ophthalmologist; or, more properly speaking, view the subject from his standpoint. The consideration of ophthalmia neonatorum (gonorrheal) presents to us one of the saddest phases of this great question. Thousands of bright little children are deprived of the enjoyment of the beauties of this world and their sphere of usefulness is decreased by the ravages of this dreadful malady.

In the various public institutions for the blind from 30 to 60 per cent. of the blindness is due to gonorrheal ophthalmia; and it is possible that the per-

centage is even greater than that, owing to the fact that accurate records are not obtainable in all institutions.

In some States the law compels the midwife, or nurse, to report to the attending physician the appearance of any discharge from the eyes of the newborn infant.

The leading obstetricians of our medical colleges, in delivering their lectures on obstetrics, advise their students in every case of labor to inspect the eyes of the child, and to use an antiseptic solution as a precautionary measure. A careful investigation of this entire subject and a consideration of the statistics along these various lines will convince even the most conservative man that I have not given an exaggerated picture. Moreover, this individual investigation will not only interest, but will prove conclusively to the investigator the magnitude and gravity of gonorrhea.

This, then, gentlemen, being the true state of affairs, the question naturally and spontaneously arises, How can we best combat this growing evil?

With your consideration and attention I shall conclude my limited paper by briefly considering some of the more feasible and practical plans for eradicating this disease.

"It is evident to all of us that at the present time legislative enactments along this line would not be supported or enforced by public opinion, because the general public are not educated up to this point. Nevertheless, it is impossible to say how rapid may be the progress in the enlightenment of the community in regard to the necessity for its protection of laws which now seem absurd.

"Within a few years we have witnessed an enormous progress in public opinion, under guidance of the medical profession, in regard to sanitary matters, such as water supply, milk supply, plumbing, sale of tuberculous meat, diseased fowls, unhealthy fruit, the abolition of the habit of spitting on the floor of public places, and other matters too numerous to mention.

"When the public understands that gonorrhea is even a greater pest than syphilis, and concerns its brightest and most sacred relations as much as smallpox, cholera, diphtheria or tuberculosis, all legislation which is possible and necessary will follow as a natural consequence, and will be enforced. Meanwhile, it is the duty of our profession to instruct itself and then enlighten the community as to the importance of this disease. Certainly no part of the profession has such an opportunitiy to observe the misery due to gonorrhea as has the genito-urinary specialist and the gynecologist. It cannot be said we are wanting in our duty in reporting to the rest of the profession the results of our observations. It rests with the general practitioner to instruct the public; not in the secular press, not obtrusively, not in public gatherings, but individually as family physicians and trusted medical advisers, and indirectly through conversations with clergymen and jurists, through school teachers, Christian associations, medical supervision of militia, police, firemen, colleges and boarding

schools for both sexes. More important than all, however, is the direct instruction of the young of both sexes by their parents. Men require clean wives, and, as a rule, get them. When young women know that a dissolute bridegroom implies infection, severe illness and ultimate loss of their productive organs, they will not marry unclean men. When father and brothers know, as we know, that giving their loved ones in marriage to men about town is dangerous they will not permit such men to court and marry them. When the mother knows why her child gets inflammation just after marriage a great terror will overshadow the miserable husband, and he will wish that a millstone were hanged about his neck, and that he were drowned in the depths of the sea. When pus tubes in the wife means disgrace and infamy to the erring husband he will be more desirous of leading a moral life, or at least he will make sure that he is really cured before he commits matrimony.

"Thus each member of the profession can do his duty to his profession and to the community gradually, quietly and efficaciously, as a physician and as a citizen, and merit the blessing asked for all instructors of youth and all means of true knowledge, virtue and piety."—*E. W. Cushing, Annals of Gynecology and Pediatary, August, 1897.*

XIX. ECTOPIC PREGNANCY.

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The earliest case of abdominal section for ectopic gestation which has been found upon record is that of Primerose, who operated in October, 1549. The history of this patient has become classical. She was twice pregnant, with extra-uterine children—first in 1591, and again some time before 1594. The cyst of the first child opened spontaneously through the abdominal wall. The fistula was enlarged, and the child extracted by Jacob Noierus, a surgeon. This operation proving successful, Primerose removed the second child by abdominal section two months later. It is easy to imagine how he was led to perform the second and more hazardous operation. Felix Platerus reported another successful case only three years later. After this we have found no indication that the operation was performed for more than a century. In 1714 Calvo reported a case in France, and in 1764 Bard another in America.—*Parry.*

Mr. John Bard was a surgeon in New York, and no one is known to have operated in this country before him. The patient was the wife of a mason, and the operation was performed several years before it was published. for Mr. Bard communicated an account of it to Dr. Fothergill in a letter which was dated on the 25th of December, 1759.

On January 14, 1791, this operation was performed in America for the second time, the subject of it being a Mrs. Cocke, the wife of a Virginia planter. The operation, which was done by Dr. William Baynham, a country physician, was entirely successful. The same gentleman operated with the same happy result upon a negro slave on February 6, 1799. This was the fourth American abdominal section for the removal of an extra-uterine fetus. The third one was performed by Mr. Knight, and communicated to the celebrated Dr. Lettsom by Dr. Mease, of Philadelphia, and published in 1795. Dr. Baynham's cases are well worth attentive study. They illustrate the intrepidity and good judgment so often displayed by the country surgeon, who, separated by long distances from his fellows, often has to act in the greatest emergencies without the counsel he may earnestly desire.

Almost a quarter of a century passed before the operation was repeated in America. On the 6th day of October, 1823, it was again performed by Dr. Wishart, likewise a country practitioner. The sixth American operation was performed on February 6, 1846, by Dr. A. H. Stevens, of New York, a man who had all the advantages of a metropolitan experience.—*Parry.*

Every respectable doctor should say "thanks" to Dr. Baynham, of Virgina, and thanks equally to Dr. Parry and Mr. Lawson Tait for giving due credit to this noble country doctor. The better element of country doctors are all grand, noble men, the giants and custodians of our beloved profession. With fresh air, sunlight, good situation and hygiene, America, through country doctors, gave the first successful, brilliant surgery to Caesarean section, while the city surgeons had met with failures. The father of ovariotomy, Dr. Ephraim McDowell, was born a Virginian, and born a country doctor. Dr. Arthur Johnstone, a country boy, raised at Paint Lick, Garrard county, Ky., did the first successful operation for ectopic pregnancy in Kentucky. Dr. John D. Craig, a country doctor of Stanford, Lincoln county, Kentucky, followed McDowell in 1850 to 1865 with successful ovariotomies, aided by his medical students and other country colleagues.

All ectopic pregnancies may be classed tubal, except the interstitial, or tubo-uterine. Ovarian pregnancy is still sub-judice. The profession is under lasting obligations to Dr. J. S. Parry, of Philadelphia, whose book appeared in 1876, for much knowledge on extra-uterine gestation. Mr. Tait states: "I never look at the finely-cut, handsome face of the man which looks out upon me from the book as its frontispiece, faced by a pathetic letter from his mourning widow, but I become persuaded that in Parry's death one of the greatest lights in gynecology of my time was lost to us." A beautiful compliment to one so deserving.

Dr. Arthur Johnstone, in his scientific expose of menstruation, explains why pregnancy should always occur in the womb. The uterus alone is the seat of normal conception. As soon as the ovum is fecundated by the spermatoza it becomes attached to the mucosa of the uterus. The function of the ciliated

epithelium of the fallopian tubes is to prevent the spermatozoa from entering the tubes and facilitate the progress of the ovum to the uterus to its proper nest, that the plications and crypts of the uterine mucous membrane lodge and retain the ovum, either until it is impregnated, or till it dies or is discharged. Johnstone and Sutton have taught us that desquamative salpingitis could place the lining of tubes in a state exactly similar to that of the uterus in this condition; the ovum in the tube would be retarded or arrested in its progress to the uterus, that the spermatozoa would find access to the designated tube, meet the ovum, fecundity take place, and immediate adhesion of ovum to the mucosa occur after impregnation. The cause, then, of extra-uterine pregnancy is any condition that will cause a desquamative inflammation of the fallopian tubes, producing the same surface on the tubal mucosa as is found in the uterus, viz: septic abortion, or labor, caustic applications to endometrium, dirty instrumentation to endometrium, as uterine applicator, dilator, and curette, gonorrhea, typhoid fever, the exanthemata, diphtheria, catarrhal salpingitis, and pelvic peritonitis.

Diagnosis. Symptoms of ectopic pregnancy are: History of previous pelvic peritonitis, abortion or incomplete recovery from a former labor, history of prolonged sterility, dysmenorrhea, or a former gonorrhea. The interval between marriage and first child is often very long, or between the last birth and the present condition of ectopic pregnancy.

Ectopic pregnancy is produced by destruction of the normal ciliated lining of the tubes. The woman may have been irregular in her menstruation, missing one or more periods, or may have been regular; and if she does not know she is pregnant or anything wrong until rupture of tube takes place with all the symptoms of pain, shock, collapse and hemorrhage. The varieties are tubal, tubo-uterine, or interstitial. The latter pregnancy takes place in the uterine end of fallopian tube, and spreads or grows into the uterine cavity, simulating normal uterine pregnancy; and unless diagnosed and treated by hysterectomy (Porro) is invariably fatal by rupture into peritoneal cavity before the fifth month. Tait states the process of development of an ovum at any part of it inevitably results in rupture of the tube. In the interstitial cases the rupture invariably, so far as is known, takes place into the peritoneal cavity, and that he had never seen an interstitial pregnancy which could by any possibility have been diagnosed from normal pregnancy before the period of rupture.

The interstitial variety ruptures into peritoneal cavity. The period of rupture seems to be from three to twenty weeks, as has been shown by post-mortem and museum specimens. Etopic gestation in the free portion of the tube invariably ruptures before the fourteenth week, and is the primary rupture. The tube may rupture a number of times and be extra-peritoneal, and not prove fatal. The intra-peritoneal rupture is secondary to the extra-peritoneal, and is invariably fatal, unless diagnosed early and relieved promptly

by surgery. The extra-peritoneal rupture occurs into the cavity of the broad ligament, and yields all those cases which go on to the period of viability; all the lithopedia; all the suppurative cysts discharging from the bladder, rectum, vagina and umbilicus, and all the cases which by *secondary rupture* of the ovum cyst are called abdominal pregnancy.

Scheme of ectopic gestation in tubo-ovarian tract: (1) Ovarian, possible, but not proven. (2) Tubal, in free part of tubes, is (a) contained in tube up to fourteenth week, at or before which time primary rupture occurs, then the progress of the gestation is (b) abdominal, or intra-peritoneal gestation, uniformly fatal, unless removed by abdominal section, primarily by hemorrhage, secondarily by suppuration of the sac and peritonitis; (c) broad ligament, or extra-peritoneal gestation; (d) may develop in broad ligament to full term and be removed at viable period as living child; (e) may die and be absorbed as extra-peritoneal hematocele; (f) may die, and suppurating ovum may be discharged at or near umbilicus, or through bladder, vagina, or intestinal tract; (g) may remain quiescent as a lithopedion; (h) may become abdominal, or intra-peritoneal gestation, by secondary rupture. Tubo-uterine, or interstitial, is contained in part of tube embraced by uterine tissue, and, so far as is known, is uniformly fatal by primary intra-peritoneal rupture, as (b) before fifth month.

Dr. Joseph Price states that "rupture of tube is not synonymous with rupture of fetal sac," though rupture of tube and sac may or generally occurs at the same time. The tube sometimes ruptures and the sac remains intact. This latter condition accounts for absence of exhaustive hemorrhage when tube alone ruptures. An absolute diagnosis of tubal pregnancy before rupture is about impossible, or guess work, as the same set of symptoms may take place from a number of pathological conditions, viz: an ovarian cyst, a uterine fibroid, retroflexed gravid uterus, hemato- or pyosalpynx have been mistaken for tubal pregnancy.

It is the exception to see a case before rupture occurs. Symptoms of tubal pregnancy are partial or complete cessation of menstruation for one or more periods, generally accompanied by other rational symptoms of pregnancy, though they may be wanting. Second, pain, which is peculiar, being generally severe, paroxysmal, long continued, sickening, pelvic pain, which is neither cramp-like or colicky. The pains may be caused by distension of the tube, apt to subside for a time, only to recur. Third, the appearance of uterine hemorrhage, which is again peculiar, in that it is usually irregular, both as to time and quantity, generally lighter in color than the normal discharge, containing shreds of tissue, which are portions of the decidua vera. The condition of the vagina and cervix may or may not correspond to normal pregnancy. The uterus is generally enlarged, and pushed out of place by a tender or exceedingly painful cystic mass, occupying the position of one or the other tubes. This cystic mass is freely movable at this period. Return of the cata-

menia may cause one to exclude pregnancy; the hemorrhage and pain and decidua may simulate a miscarriage. The symptoms, as the pregnancy advances, become increased, the tumor increases in size, and pressure symptoms are added to bladder and rectum, until rupture occurs. Intra-peritoneal rupture is secondary to extra-peritoneal rupture, except interstitial, always alarming and serious. The patient is seized with agonizing pelvic pain, shows all the symptoms of internal hemorrhage and shock, and goes into syncope, collapse and death, unless relieved by prompt diagnosis and early life-saving surgery—no time for dilly-dallying and procrastination. In a short time Dr. Formad, Coroner of Philadelphia, found in his post-mortem work eighteen cases of ruptured tubal pregnancy, a class of cases which for many years had been grouped as due to accidental hemorrhage. These deaths occurred before the twelfth week of pregnancy.

When death does not immediately supervene the recovery from the shock is gradual, the attacks of syncope often recurring; patient presents an exsanguinated appearance; uterine hemorrhage often present; symptoms of peritonitis, localized or general, make their appearance; patient slowly recovers, only to have another attack of the same kind. A physical examination may detect the peculiar lesion; if it does, the uterus is enlarged, displaced and fixed, and a tumor will occupy the position of pregnancy in the tube. The tube may discharge its contents beyond the reach of the finger, or adhesions may be so numerous as to fix the whole vault of the vagina, so that nothing can be made out. Diagnosis of the case must be made from the history of the case and condition of the patient. A multiparous woman may have an extra-uterine pregnancy. Any patient with the foregoing history and symptoms demands at once the most earnest and serious consideration. Error in diagnosis and procrastination may place the patient beyond successful life-saving surgery. Recurrences of attacks of extra-peritoneal tubal rupture may occur two or three more times and patient survive before intra-peritoneal rupture finally occurs, with violent or fatal hemorrhage, shock, collapse, peritonitis, septicemia and death. The day has passed for the general practitioner to diagnose tubal or extra-uterine pregnancy as colic, dysmenorrhea, or ovarian congestion. The practitioner sees these cases first, must make the diagnosis of a pathological intra-pelvic lesion, and send quickly for the surgeon to operate and confirm the diagnosis.

Extra-peritoneal rupture is not so serious as the intra-peritoneal; symptoms are less prominent and severe; hemorrhage less alarming, being poured out into cavity of broad ligament, and is soon confined by encapsulation; vesical and rectal tenesmus is greatly increased; the hemorrhage is less if tube only is ruptured, than if the fetal sac is also ruptured at the same time. Examination may reveal the presence of a doughy or boggy mass in the pelvis, that of a pelvic hematocele, and often the body or extremities of the fetus. Localized peritonitis may be absent. If fetal sac ruptures, fetus dies; and, unless re-

lieved by surgery, patient passes to a state of invalidism, unless nature relieves her by encapsulation of the mass or by suppuration the etopic mass may pass out through the vagina, bladder or rectum.

Sometimes the patient recovers with fair health and comfort; the fetal sac may not become ruptured, but go on developing to full term of pregnancy, unless another rupture takes place, and into peritoneal cavity. The progress of gestation will be similar to that of normal pregnancy until full term. After quickening, the doubts of pregnancy are settled, and location of the fetus without or within the uterus settled. The metrorrhagic discharge may have been settled if the decidua has been passed out; the severe paroxysm and pains may be few or have subsided. The mammary glands are as in normal pregnancy; fetal movements cause more discomfort, and appear to be on one side; the fetal heart sounds and placental bruit are usually intensified; as the fetal sac enlarges distressing pressure symptoms on bladder, rectum, and blood vessels take place. Inspection and palpation will show fetus on one side of abdomen and pelvis; the fetal extremities may be palpated or appear as projections under the abdominal wall; fetal sac less movable than the pregnant uterus; the fundus uteri can be felt as a distinct mass on side of the ectopic growth. Uterus is enlarged, but not near so much as in normal pregnancy; cervix soft and enlarged, as in normal pregnancy, and displaced. The pelvis is filled with the fetal mass, and on digital examination gives the sensation of fluctuation, or semi-fluctuation. Part of fetus may be felt. If the pregnancy goes to full term spurious labor will take place, and a metrorrhagic discharge like the lochia takes place.

After the spurious labor the fetus dies and is disposed of in several ways by nature, or by the surgeon. The ectopic gestation may form an hematocele or become encapsulated and form a lithopedion. Intra-peritoneal hemorrhage, or the latter and septic peritonitis, may kill the patient. Suppurative peritonitis, with abscess discharging through rectum, sigmoid, vagina and bladder or abdominal wall may take place, or the ectopic mass be macerated and absorbed. Vanderveer states: "Waiting in any case is dangerous, and 25 per cent. of the cases after rupture die before an operation can be done." An extra-uterine pregnancy may occur in a hernial sac; twin extra-uterine pregnancies, or extra and intra-uterine combined, may be coincidences in some cases. A fetus may become encysted, or form a lithopedion, which in rare cases has been carried fifty years without any unfavorable symptoms. "On the other hand, in the secondary form of intra-peritoneal pregnancy, we have a voluminous product of conception suddenly thrust upon the peritoneum, accompanied by large quantities of blood, wounding possibly, irritating certainly, this membrane, so unaccustomed to such harsh intrusion. Here the ovum acts the part of a foreign body, soon determining an acute inflammatory process about it, that possibly may form a cyst wall, made up almost wholly of plastic lymph, which completely isolates it from the rest of the peri-

toneal cavity. If the fetal cyst ruptures and the contents escape from the amniotic cavity into the midst of the intestinal mass, a renewal of the inflammation occurs, and the cyst just described forms around it. As a rule the fetus perishes at, or soon after, the time of rupture; still there are cases recorded, notably by Bandl, where it continued developing even within a sac formed of proliferating connecting tissue. With the death of the child it may be converted into a lithopedion, or, through the blood-supply of the connecting lines, it may be preserved for years in its soft integrity."

In all cases numerous and greatly exaggerated vessels form in the cyst walls, the rupturing of which frequently causes almost instant death from hemorrhage. Sometimes, especially when the pregnancy is prolonged, these walls may become destroyed by perforating, fistulous canals, running in various directions, frequently communicating with the intestines, vagina, uterus, bladder, or even with the abdominal parietes, and thus directly into the external world. Through these fistulous channels the skeleton portions of a putrescent fetus frequently find their exit. This change is undoubtedly more frequent than that the fetus should be transformed into osseous or cretaceous substance, or even adipocere. Beside these varieties of extra-uterine fetation, Bandl, as already mentioned, records histories of the coexistence of the extra and intra-uterine pregnancies, "the latter occurring at the same menstrual period as the former, or possibly after the death of the extra-uterine fetus."

"When the fetus is living and viable, abdominal section should be done both in interest of it and mother, and in cases diagnosed, that have passed the sixth month, wait until viability is well established and perform abdominal section. Observe every precaution, that separation of the placenta does not occur. Close the sac and drain through the vagina."—*Martin.*

In rupture of tube and sac do an immediate laparotomy, with removal of sac, contents and effused blood. In case of death of fetus. after the sixth month in ectopic pregnancy, it should be removed by laparotomy.

"When we meet with an adherent vermiform appendix, unless the patient's condition is very bad and contraindicates undue or prolonged manipulation, I think it well to tie off and cut away the appendix, it being, as we know, a useless organ, and one capable of serious trouble. Were we so unfortunate as to tear either iliac vein, it should be tied both above and below the opening made in it, this being much safer than to attempt to ligate it laterally. Should we have a portion of gangrenous bowel to deal with, resection, or the formation of a temporary artificial anus, which can subsequently be closed, would be the treatment. In the event of tearing the ureter, and, having discovered it, the proximal end of the ureter could be stitched in the abdominal wound, making a urinary fistula; but a safer procedure would be to do a median nephrectomy. If the condition of a portion of the great omentum is questionable, I unhesitatingly state that, in my experience, it is far better to ligate it and remove the doubtful portion than to return it, with

the hope that it may recover itself; this I have demonstrated in operations for strangulated hernia.

"In all cases of abdominal section for intra-abdominal hemorrhage, where there has been escape of the contents of a cyst into the abdomen, and where adhesions have been separated, the abdomen should always be most thoroughly washed out. In fact, in all cases of section, where the indications do not seem to call for irrigation, yet, if there is any doubt in the mind of the operator as to whether or not he should wash out the cavity, I should say that it was safer to irrigate. This, irrespective of the removal of all foreign matter, and leaving the parts in a perfectly aseptic condition, in depressed conditions, acts as a stimulant by exciting the sympathetic nerves, with which it is brought into close contact, by being introduced into the abdominal cavity, where the greatest number of branches of this system of nerves are distributed. In cases where there has been much leakage from the skin, an evidence of profound shock, it acts in a two-fold manner by filling up the depleted blood vessels and by stimulation." The normal salt solution would be better than hot water *per se*.

"In all cases of section for hemorrhage, or where much bleeding has occurred while doing the section, where there has been escape of pus or other septic matter into the peritoneal cavity, there should be no hesitation about the case being a proper one for drainage. In fact, my experience has been that cases, where a drainage tube has been inserted, have proved less complicated after the operation than in cases where it has not been used."—*Deaver*.

After the spurious labor the fetus, dead, may be still encysted, or, no sac present, the liquor amnii absorbed, and the child undergoing retrogression, maceration and decomposition, the placenta forming a large mass, attached to uterus, bowel, bladder and pelvis, bleeds freely on slight provocation, and the cord is shriveled. In the treatment of ectopic lesions the sac may be stitched to the edges of the abdominal incision, leaving the placenta undisturbed, and placing a drainage at the site of placenta, with cord fixed in lower angle of wound, or tie and cut cord off close to placenta. The placenta will ripen, degenerate, and the debris be removed gradually from abdominal wound. On account of the prolonged suppuration the patient is exposed to the great dangers of sepsis. The first great danger is hemorrhage from separation of the placenta, then purulent peritonitis. Just how soon ripening and degeneration of placenta, with obliteration or destruction of blood vessels of placenta, take place, it is impossible to say. Each case is a law unto itself.

In one case, cessation of circulation may occur in three weeks; in another, in five or six months. According to Mr. Tait, "the sac should be thoroughly cleaned before and after removing the fetus," and filled with normal saline solution, to stitch the sac into incision and close it tightly as the water escapes, thus closing it hermetically; then proceed to close the abdomen, and leave sac and placenta to undergo atrophy and absorption. Montgomery

states "tubal pregnancy may have the usual symptoms of pregnancy, the attack of tubal rupture may be accompanied by uterine discharge of bloody character, leading the patient to believe that it is a return of the ordinary menstruation. Examination of the fluid will usually disclose the presence of a decidual membrane, thrown off either as a cast or in shreds. The presence of this symptom in a woman who has not before suffered from dysmenorrhea is almost a pathognomonic indication of extra-uterine pregnancy."

"When there is shock, pain, evidences of internal hemorrhage, and a supposed case of ectopic tubal intra-peritoneal rupture, by an exploratory incision in the median line down to peritoneum, one will often be able to make the diagnosis of intra-peritoneal tubal rupture and hemorrhage, as the peritoneum, instead of being a transparent, glassy, or grayish color, will be a dark black, and prove the demand for continuance of operation and diagnosis of the true condition within."—*Joseph Price.*

When a tubal rupture occurs the proper thing to do is to incise, ligate the broad ligaments, remove the tube with the fetus and placenta, cleanse and drain peritoneal cavity. If ectopic pregnancy goes beyond the fourth month the danger of rupture is lessened if the fetus is living. Most operators wait for spurious labor to begin, then remove a live fetus, or wait until the fetus dies and the placental circulation has ceased. Greig Smith states: "After spurious labor and the death of the fetus the onset of suppuration makes abdominal section imperative."

If the fetus is quiescent, operation, although advisable, is not urgent. It is better to wait until absorption of the amnion indicates that the placental circulation has ceased. Suppurative cases that open into the bladder are much more fatal than those opening into vagina, rectum, bowel or umbilicus. Mr. Tait advises dealing with them by abdominal section, and if dealt with early much of their mortality would disappear and the patients saved years of suffering. He further states: "I would treat them as I do pelvic abscess, and if peritoneum was opened I should close it in my usual fashion, by stitching the walls of the cavity of the broad ligament to the opening in the parietal peritoneum, after emptying the decomposing debris and cleaning out the cavity." That he had done over fifty operations of this nature, and not only has there been no mortality, but the cases have been so rapid, complete, and permanent as to give him perhaps more satisfaction than almost any other class of his work.

"The diagnosis in ectopic, broad ligament cases nearing maturity, will often be different, viz: extreme thinness of the uterine wall in normal pregnancy, displacement of the normally pregnant uterus during the early months of pregnancy, complicated with fibro-myoma or cystic diseases of the uterus, and more rarely pregnancy in one-half of a double uterus. The greatest difficulties in diagnosis are met after the death of the child, or at least when the time of

the expected confinement has passed so long, that if there is a child it is sure to be dead. In many cases of uncertain period of gestation we have hemorrhage, uterine effusion, the extension of coagula, of foreign bodies, which resemble moles or portions of placenta. These appearances have occasionally led to the belief that the patient has aborted, so that the ovum was originally not extra, but intra-uterine, and has escaped through a rent in the uterus into the peritoneal cavity, the extended body in either case being viewed as the placenta."

Two symptoms are regarded by Mr. Tait as invariable in extra-uterine gestation which has gone past the period, viz: a show during false labor, and a diminution of size after false labor. Mr. Tait states: "I open the abdomen and make out the condition." Mr. Tait is strongly in favor of completed operations. So should all good practical, skillful, common-sense surgeons be. "The rule should be that all such operations should be completed, and any man who has such want of skill and pluck as to stop in the middle of one ought not to attempt them. They can all be completed." Mr. Tait advises saving both mother and child when it can be done. He says: "I therefore advocate the principle of saving a child who has survived the catastrophe of the primary rupture of the tube by being extended into the broad ligament. If its existence is recognized during life the mother ought to be carefully watched till false labor sets in, just as we watch for a case of puerperal hysterectomy, and seize the onset of labor or its early stage as the most favorable time for both mother and child, viz: not to operate before the child is likely to be viable, provided the delay does not prejudice the mother, and not to delay at all after the death of the child." Mr. Tait approves the unjustifiableness of the vaginal section as a surgical procedure, and states: "I shall never, under any circumstances whatever, attack a sub-peritoneal pregnancy from the vagina," and advises in dealing with an ectopic gestation in the advanced stage, that we should deal with the fetus only; should empty the placenta of blood and close the wound hermetically upon it. Mr. Tait teaches by far the greater number of cases of ectopic gestation are tubal, and states: "I do not see any difficulty in believing even that a pregnancy originally tubal may be completely extended from the tube; that the tube may contract and heal, and that a secondary and wholly intra-peritoneal gestation may be thus formed." It is possible that the Fallopian tube, glued on to the ovary and deprived of its lining epithelium, permitting the contact of the spermatozoa with the follicle, burst within the area (of the ovary) of the adhesions. Then the spermatozoa might infect the ovum before its escape from the follicle; the ovum might adhere to the follicle and then develop."

"What have been called abdominal pregnancies are clearly exceptional cases where primary tubal rupture at the end of the third month has not proved fatal, where the extruded placenta has made for itself visceral attachments wherever it has touched, or where secondary rupture of a broad ligament cyst

has converted an extra-peritoneal ectopic gestation into one within the peritoneal cavity. That the first of these processes is by far the most common condition has been proved to me beyond doubt in my operations, for I have seen the ruptured tube within a few days of the catastrophe containing the bulk of the placenta, whilst the villi of the extruded portion has been engaged in making inroads on intestine, bladder, the back of the uterus, and the folds of the omentum. I have pulled these villi out of the living crypts they have made, much as one pulls a barnacle out of its bed, leaving bleeding holes behind them."

Every woman should be examined by digital and conjoined manipulation at least once a month until the fifth month has passed. If this was done we would have a more accurate way of diagnosing ectopic pregnancy before rupture or any other abnormal condition that might exist in the pelvis. Forewarned is forearmed.

When the physician demands and teaches the family and patient the importance of an early digital and conjoined examination during the first half of pregnancy there will be no bar or difficulty to a thorough examination. But one sad thing in the profession is so few know *how* to feel, *when* to feel, and *what* to feel, and often feel much they do not recognize, are not diagnostic feelers. In normal pregnancy the womb thickens, distends, elongates, gets heavier, and venous sinuses form, also increase of arterial supply. This is the key to the only diagnosis of tubal pregnancy before rupture.

On the contrary, the tube, though distended and enlarged, its wall gets thinner at the placental site. The same is true when distended from other causes. "Certainly in tubal pregnancy there is no imitation of the thickening of the muscular coats of the uterus. The villi of the placenta permeate the walls, seem even completely to penetrate them, and the blood vessels increase enormously in size, especially the veins. Some slight exertion occurs, such as stooping at some household work, a violent attack of pain comes on, the patient becomes faint, collapsed, cold, pulseless and anemic, and dies almost uniformly if unaided."

This is the story of a great number of these cases, for in quite a number of cases in which I have seen post-mortem examinations the women have been found dead or dying, and suspicions of foul play have not unfrequently been aroused. Sometimes the symptoms abate, the patient recovers for a few days, and even gets about; then a recurrence of the peritoneal hemorrhage occasions a revival of the serious symptoms, and this may be repeated at intervals several times before the fatal issue is arrived at. "When rupture has occurred diagnose quickly; no morphine or opium; early, quick, life-saving aseptic operation; short anesthesia; rapid surgery. Incise abdomen; go at once to bleeding spot; tie broad ligament; remove the pregnancy; wash out thoroughly and quickly; put in a glass drain tube; sew up quickly; siphon and apply toilet; put patient to bed on back; keep her at rest absolutely; use saline solution, stimulants and artificial heat, and save the patient."

Mr. Tait states: "But in rupture of an extra-uterine fetal sac in the early stages of pregnancy a whole lifetime, a whole century, is not enough to enable one person to make two errors in regard to the prognosis of this accident." Again, the wonderful Mr. Tait states: "Where I find my patient in danger of death from conditions within the abdomen, which do not seem to be clearly of a malignant nature, but a correct diagnosis of which seems impossible, I open the belly and at once make the diagnosis certain and a successful treatment possible. When the conditions were such that the patient's life was miserable by reason of suffering which could not be relieved, or at least had not been by all other measures, I open the abdomen and at once make the diagnosis certain and a successful treatment possible. Absolute accuracy of diagnosis in the abdomen is very far from being possible; only the ignorant assert that it is, and only fools wait for it."

The diagnosis of tubal pregnancy at the *time of rupture* may be made with *certainty* seven *times* out of *eight*, and may be guessed at in the *eighth* instance. The symptoms are too serious to be lightly regarded at any time, and practically coincide with those of pelvic hematocele. If the rupture takes place into the broad ligament they are the symptoms of extra-peritoneal hematocele. If the rupture takes place into the peritoneal cavity they are the characteristic and most serious group which belong to intra-peritoneal hematocele.

No more appropriate place occurs to me to discuss this much confused question, if for no other reason than that I have never seen an intra-peritoneal hematocele that was not due to a ruptured tubal pregnancy; and very many cases of extra-peritoneal hematocele (effusions of blood into the broad ligament) have undoubtedly been tubal pregnancies, which have ruptured between the peritoneal folds of that important structure. The difference between them is all-important in every way, for the intra-peritoneal ruptures seem to be almost uniformly fatal, whilst the extra-peritoneal hematoceles, whether arising from tubal pregnancies or not, should certainly be left to take their own course, unless they give signs that they are suppurating.

Pelvic hematocele ought to be retained to cover all effusions of blood which have their origin in the pelvis. The extra-peritoneal pelvic hematocele within the folds of the broad ligament has three anatomical hematocele factors that arrest the hemorrhage and conserve the life of the patient: First, the interstices of the cellular tissue; second, the space between the folds of the broad ligament when distended forms a limited cavity, and is not capable of rapid distension to an indefinite extent; third, the pressure of the broad ligament itself, as a membrane distended and resisting further distension exercises pressure upon the bleeding point and becomes a powerful hemostatic. These factors are absent, and hemorrhage is actually favored by the dilution of the blood as it passes out of the bleeding points. When it flows in quantity into the peritoneal cavity, probably by reason of its dilution, the lymph is always present there, and easily excited into excessive flow by an abnormal condition if it does

not show much tendency to coagulate, save in a very fitful and fragmentary way. One of the most remarkable proofs of this is the influence of the drainage tube in arresting hemorrhage. If the cavity is kept dry by frequent withdrawal of blood and serum, oozing from torn pelvic adhesions, the bleeding will soon stop; but if drainage is not kept up the bleeding will probably prove fatal. We shall find also that the two varieties of hematocele are different in their relative frequency, in their causation, in their history, and, of course, particularly in their relative fatality; different in their symptoms and the signs by which they may be diagnosed, and finally in their demand for surgical interference. Dr. Bermutz has expressed an opinion, to which I have already alluded, "that the bloody tumor which is left as the remains of a hemorrhage has no right to be regarded as a specific disease apart from what has caused it." This is true I hold of intra-peritoneal hematocele, but not of the extra-peritoneal variety. When hemorrhage into the broad ligament occurs, the arrest of the hemorrhage has already been brought about, in the vast majority of cases, by nature's own methods, probably even before the accident has been diagnosed, and therefore all we have to do with is the thrombus, and in the great bulk of cases that may be, and generally is, let alone. But cases do arise when it becomes a serious disease, for if the sac of the broad ligament bursts into the peritoneal cavity the hemostatic pressure is relieved, and bleeding goes on, the two forms of the lesion co-exist, and the patient bleeds to death.

XX. THE EARLY AND NON-SURGICAL TREATMENT OF THE DISEASES OF WOMEN.

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In the American Journal of Surgery and Gynecology, October, 1899, the editor has this to say: "Modern gynecology belongs practically to the field of operative surgery; the gynecologist of the near future will be the general surgeon; gynecology is but a minor department of the great field of surgery, and is to be doomed as a specialty."

What a mistake to make! Modern gynecology should be as far from surgery as the general practice of medicine.

The general practitioner often turns a case over to a surgeon to be operated upon by him, but that is no reason that the general practitioner of the future will be the general surgeon. Gynecology should be classified as far from the surgeon as the practice of medicine. If gynecology is to mean surgery, then let us use another term for the systemic and local treatment of the dis-

eases of the female organs of generation. Gynecology should be looked upon as a special branch of medicine, and not of surgery.

The definition of gynecology is a treatise on or the doctrine of the nature and diseases of women.

Savidge says that he "protests that gynecology is more than surgery. It is the province of gynecology to seek the cause of so frequent an affliction. It is still non-surgical gynecology which guards against the condition. Prophylaxis in gynecology—a new field within the specialty—may render some surgery unnecessary."

Medical or non-surgical gynecology should be taught in our medical schools as a separate branch from surgical gynecology, and not merged into surgery, as it is to-day.

"If our best men would turn and give the same study to the pelvic organs of our young women of to-day as they are giving to those whose organs are so diseased that they must be removed, would not a few years make a great change?"

First, we will speak of the early treatment of the diseases of women. This treatment should begin with the teaching of the mothers of our young girls. One great and frequent cause of the diseases of women is unquestionably a faulty mode of education.

"The child is the mother of the girl," and principles implanted in its bosom will bear fruit in after years. Neglect of proper and adequate early education is the cause of much suffering, and the gravest responsibility rests with parents, especially mothers, whose imperative duty it is to impart to their offspring a thorough knowledge of themselves, of all physiological facts pertaining to herself as a human being, in terms unmistakably simple and scientifically exact.

In every high school, or just before the age of puberty, girls should be taught the anatomy and physiology of the female organs of generation, and the care of themselves during menstruation. This could be done by having a physician to give a course of lectures in the high schools and private schools.

The girls must bear the burdens of gestation, of parturition, of lactation, of maternity. She must have the utmost perfection of physical development. The growth and well-being of her body should be as carefully looked after as the growth and well-being of her mind. There should be a co-education of body and mind—the one helpful to the other.

From the age of 8 to 14 girls spend too much of their time in the school room pouring over their books, when they should be out in the open air and enjoying themselves, as only children can. Then, just as the menstrual period is beginning, just as puberty is struggling to assert itself, comes the examinations to promote them to the high school. Then four years of hard study and intellectual rivalry follows; four precious years, years that are very needful for the perfect development of the reproductive organs and for the full establish-

ment of their functions, but these four years are spent in an endless anatagonism beween brain growth and body growth.

Too much attention, in proportion, is paid to the growth of the mind than the body. So our public schools and boarding schools and female colleges are liable to become the hot-beds for nourishing sickly and undeveloped girls.

The break-down in school comes from a combination of causes. To the mode and quality of their education, to long confinement in impure air, to the close-fitting female dress, and to an unwholesome diet of sweetmeats and indigestible foods. Also it is especially due to an utter disregard for the *menstrual* week, when by their own sensations and feelings women are unfit for exhausting brain work or fatiguing body work.

After this weary, worn-out, rest-needing girl is released from the school desk she launches into the dissipations of society. She marries some youth who is bewitched by her face and charmed by her intelligence, but sees not the frail body. After marriage the man sees she is unfit to assume the duties and responsibilities of a married life, and has a large outfit of backaches, spineaches and headaches.

Unequal to the obligations of marriage, she at first tolerates them, then loathes them. After a while aversion and hate follows. The husband is driven to unfaithfulness, and finally the domestic drama ends in separation or in divorce.

Directly after marriage, if the husband finds the wife unfit to fulfill the duties of a wife, in manner mentioned above, they must be taught by us, both the husband and the wife, that this is the time the wife should be placed under the care and treatment of the gynecologist, not the surgeon.

Undoubtedly some of the worst forms of women's diseases come from the specific infection of wives by their husbands, and criminal abortions. A woman has great weariness, more or less nervousness and wakefulness, inability to walk any distance, a bearing-down feeling, then headache, napeache and backache. Next comes scanty, or painful, or delayed, or suppressed menstruation, cold feet, and an irritable bladder, general spinal and pelvic soreness, and pain in one ovary, or both. The sense of exhaustion is very pronounced; the woman always tired; she spends the day tired, and she wakes up tired, often more tired than when she fell asleep. She sighs a great deal; she has low spirits, and often fancies that she will lose her mind.

All these symptoms may be the outcome of sorrow, but more often some trouble of the generative organs. The woman may just need medical treatment for her general health, but in all these cases it is a good rule to examine for some trouble of the sexual organs.

Irregular, painful and suppressed menstruation, prolapsus, leucorrhea, ulcerations, chronic inflammation, congestion and enlargement of the uterus cause more irritability, unhappiness and misery than is dreamed of by the laity. Diseases of the female organs of generation are becoming so common that it is seldom that we meet a woman who has not some trouble.

"The procreative system of woman is so intricate and so delicate, at the same time so closely allied to every organ of the body by means of its nervous branches, that when it is diseased it affects the whole general health. Still the physician who recognizes the complexity of woman's nervous organization and appreciates its tyranny will touch her well-being at more points, and with a keener perception of its wants, than the physician who holds the opinion that woman is woman, because she has a womb. It will be admitted that the organs forming the series engaged in the reproduction of the species are, next to the brain, the most complex in their mechanism and most profoundly physiological in their function.

"Furthermore, I admit that derangements of the brain will sometimes affect the functions of the sexual system, but on the other hand I emphatically affirm that disorders of the sexual organs will produce disturbances of the brain, ranging from mild mental unrest to the most severe attacks of insanity.

"We know there does exist a certain inter-dependence between the organs of reason and those of generation. Is this brought about by reflex action, changed internal secretion, or what?"

In the early treatment of the diseases of women we will have the following conditions to overcome: Congestion, cartarrhal and inflammatory troubles, ulcerations, lacerations, mechanical troubles, sympathetic disturbances and venereal diseases.

Whatever the condition, it should be treated, and not be allowed to go on until you have such a condition that the knife is the only treatment. When these conditions are diagnosticated and attended to we will not have so many unsexed women, nervous wrecks, and invalids. The surgeons will not see so many cases that can only be relieved by an operation.

We have vaginitis, cervical or corporeal endometritis, metritis, salpingitis, ovaritis, pelvic peritonitis and pelvic cellulitis. These conditions should be treated, or they will continue in a chronic form, leading to structural changes. which in time will call for the use of the knife. These women may not be confined to their beds, but, as far as performing their household or marital duties, they are invalids. They complain of backache, headache, no-count feeling, soreness in the pelvis, and leucorrhea. These cases should be treated and not allowed to go on.

I hail with joy anything that will lessen the unnecessary operative treatment upon women. There is no doubt in my mind that heretofore the knife has been used too often, and then, after the use of the knife, in a large majority of cases, the patient is left in a nervous condition that is even worse than the preceding one. Of course, there are cases that the operative treatment—removal of the organs—is positively necessary.

Women are afraid of the knife, and, believing that the removal of these organs is the only thing that can be done, they will not consult a physician until it is positively necessary, and when it is too late for other treatment to

cure or benefit them. We must now educate the women to the idea that a great deal can be done for them by non-surgical treatment.

All cases of dysmenorrhea should receive attention. It is not always necessary to make a vaginal examination of the virgin, but place her upon a uterine sedative during the menstrual week, and in the interval upon a tonic, and by this care we will prevent many of the old chronic cases.

Some time ago a professional nurse came to me and said she supposed she would have to have her ovaries removed, as they were paining her a great deal. I asked her why? She said that Dr. —— (mentioning one of the leading practitioners of Louisville) had told her there were no drugs that would act directly upon the reproductive organs.

We certainly have sedatives and tonics that act upon these organs, drugs that will relieve the inflamed and congested organs, and also those that act as direct tonics, the same as we have heart sedatives and tonics.

"We can decrease the size of a dilated heart; we can make the flabby solid of flesh; increase chest expansion; clear up brick-dust urine; stop palpitation; change the color of the skin, the luster of the eye, the strength of the heart's impulse; tone up various varieties of ptosis; remove the symptoms of retro-deviation. When all this can be done without the use of the knife, am I not justified in protesting that there *is* an important *medical* side to gynecology?"

Modesty is often a great barrier to the treatment of the female reproductive organs, but there are varieties, false and true. Our daily papers have a great deal of trash concerning women and their different complaints, the gist of which is that they cannot bring themselves to give full information regarding themselves to a physician, especially if he is of the male sex. This is all nonsense. But I advise you never to treat a case without a thorough examination of the organs of generation, unless in a very young girl, and then that depends. In young girls local treatment is very rarely necessary.

In order to manage and treat a gynecological case successfully it is not only necessary to treat local troubles, but carefully look after the general health, the diet, function of the bowels, of the skin, surroundings and medication; not only internal medicine for the general health, but sedatives and tonics, that act directly upon the generative organs; and last, but not least, hot irrigations and local medication. By the local medication I do not mean the old-time treatment of caustics, iodine applications and glycerine tampons.

There is a broad field in gynecology for the use of the glandular extracts, such as the ovarian, mammary, parotid and thyroid extracts, and phospho-albumen.

Mallet, of New York, has paid special attention to the use of the parotid gland extract, and summarizes its use as follows:

1. It has seemed to relieve the pains of dysmenorrhea in all cases, without regard to the supposed causes or pathological condition present, to a greater extent than any of the numerous so-called uterine sedatives, all of which he has used.

2. It relieves those dull aching pains referred to the back and ovarian regions, usually designated by those familiar, through vague and unsatisfying terms, as reflex pains, ovarian neuralgia, etc.

3. Menstruation, when deranged, seems to become more regular as to periodicity, less in amount and shorter in duration.

4. During its exhibition pelvic exudate seems to soften and become absorbed more rapidly under abdomino-pelvic massage.

5. The general health, strength and spirits seem to improve during its use, and those dull headaches, which constitute such a persistent and annoying symptom in these cases, are almost invariably relieved, and in some disappear entirely.

6. The only counter-indication that he has thus far met with to its use has been in cases of the artificial climacteric (following double salpingo-oophorectomies), in which cases the flashes of heat and cold were made distinctly more frequent and severe.

Dr. Wm. Goodell says that to restore the health of a woman whose appendages are diseased, or to relieve her from her suffering, a surgical operation is by no means always necessary. Many women with adherent tubes and ovaries, and for the matter of that, some even with pus in these organs, suffer either no inconvenience whatever, or very little indeed, from that condition *per se*. There are, again, others who have pains and aches at their monthly periods only. Let, however, their health break down, say from influenza, from malaria, from overwork, or from nerve-strain, then symptoms may arise from their hitherto latent pelvic lesions. Yet in most of these cases, if the woman can be restored to her former condition of health, that is to say, to that which she enjoyed just before the final break-down, she will lose her local symptoms and become symptomatically well.

Dr. Goodell speaks positively, for many a patient has been sent to his private hospital to have her distinctly damaged tubes and ovaries removed, who has been restored to health without the use of the knife.

Now, by the term "restored to health" is not meant that the treatment has always released the adherent appendages, but that it has freed the woman from every pain and restored her fully to all her social and domestic duties and pleasures. She has been cured so well as to be able to row, to swim, to dance, to take long walks, to ride horseback, and to exercise in the gymnasium, and what better vouchers of good health than these can be given.

He also asserts that even women with all the subjective and objective symptoms of ovarian or of tubal abscess have been cured by him without any operation whatever.

What is still more strange, in a few cases of abscess of both uterine appendages, very few, he acknowledges, the treatment by massage, electricity, local applications, internal medication, and by a general building up of the system, was followed by conception, pregnancy and parturition. These were cases in which he did not advocate castration until other means had been tried, but all had been sent to him by their physicians for the purpose of having their

appendages removed. Nor does he stand alone in this opinion. At a meeting of the American Gynecological Society, Dr. Robert A. Murray gave a clinical report of six cases of double pyosalpinx, and in the discussion following the reading of this paper, Dr. George M. Edebohls stated that he had known a number of cases of true pyosalpinx to get well, the women afterwards becoming pregnant.

Report of two cases of pyosalpinx cured without operation:

CASE 1. On May 20, 1898, I was called to see Mrs. H., age 38. Upon examination found a congested uterus and an enlargement on the right side, tubal in shape. She gave history of pain on that side, followed at intervals with no pain, and at this time a nasty discharge from the vagina. Also an ulcerated condition of the cervix and slight enlargement of the posterior portion of the cervix. She was placed upon treatment. The enlargement of the posterior portion of the cervix developed into an abscess. Had patient removed to Sts. Mary and Elizabeth Hospital.

Dr. H. B. Ritter saw the case with me, and diagnosed a pyosalpinx, with an ulcerated condition of the cervix, and an abscess of the posterior portion of the cervix, which was opened June 8th, filled up again in a week, opened again, and no more trouble followed.

The tube was emptying through the uterine cavity every few days. After two months' active treatment the tube stopped filling up, patient was kept under treatment four months longer, and now, after two years, she has had no more trouble. Menstruation occurs now without pain; before I saw her, had been having severe pain during menstruation. This woman ten years ago had had syphilis. She had been suffering six years with the right side.

CASE 2. On February 9, 1898, at 10 o'clock p. m., was called to see Mrs. S., age 32. Another physician had been attending the case and diagnosed a pyosalpinx. One of our leading surgeons was called in by him and an operation was advised. The family would not consent. They were dismissed and I was called.

Patient gave the following history: That two or three hours before I saw her she was suffering intensely. The surgeon and physician had examined her, and told her one of the tubes had filled up with pus and would have to be removed. She said the examination gave her intense pain. When I saw her she had no pain, but said that about half an hour before I came something had seemed to give way in her, and a lot of nasty matter was discharged from the vagina, and directly all pain ceased. Upon examination found no enlargement. The uterus was congested. My diagnosis was a pyosalpinx, that had emptied into the uterine cavity.

She gave the history that two or three times per month for the last three months this same thing had occurred, suffering intense pain, and just when felt as if she could not stand it any longer, the rupture would occur, and a quantity of nasty matter passed from the vagina. Patient was placed upon treatment, and from that time to this, two years and three months, she had no return of the trouble.

XXI. CRETINISM, WITH REPORT OF A SPORADIC CASE.

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Cretinism is a rare form of idiocy, usually occurring in infancy or early childhood. It may either be congenital or acquired, and sometimes occurs in adult life, when it should be called myxedema, the only difference between the two forms of the one disease being in the age of the patient at the inception of the symptoms. Murray, in his writings on the subject, calls all cases developing before the age of 15, cretinism; and all developing after that age, myxedema. This is, in my opinion, a very satisfactory dividing line, and should be accepted by the profession.

Cretinism is due to the absence, disease, improper development, or removal of the thyroid, which is a ductless gland, and one whose function, until a very recent period, was unknown. Investigations have demonstrated that after this gland is removed, in either man or beast, the symptoms of cretinism soon develop, thus showing that it has an intimate physiological relation to both mind and body. Congenital cretins, where the thyroid is absent, usually die in infancy or early childhood; but should the thyroid be present and poorly developed, they may live many years without treatment. If the disease is developed in infancy or childhood, the prognosis is more favorable than in the congenital form; but in either case cretins are always hideous dwarfs, with harsh voices and expressionless faces. As a rule they possess some intellect, and are capable of being taught to do uncomplicated work. That form developing in adults is usually produced by a goitre, impairing thyroid function.

As the etiology and treatment of both cretinism and myxedema are the same, I will refer only to the former. Cretinism is more common in females than in males, the proportion being about two to one. It is known by the peculiar appearance of the persons affected. They have thick, short necks, are low in stature, idiotic in appearance; thickened, myxedematous skin; thick, puffy lips and cheeks; thick tongues, which often protrude from the mouth; low forehead; coarse, rough hair, usually light in color; large abdomens, and lumbar lordosis, the degree of any or all of these symptoms depending entirely on the condition of the thyroid. If it be absent at birth, we have complete cretinism, or total idiocy. Such children seldom learn to walk, and are totally helpless. If the gland be present at birth, but improperly developed, we have incomplete cretinism, or idiocy in a modified form. The gravity of the disease is influenced and controlled entirely by this seemingly unimportant gland, though in reality one whose mysterious power is so great that it seems to serve as a balance wheel to control or guide the great human machinery which at birth was set in motion.

Cretinism being so rare when compared with the frequency of other diseases, the knowledge of the general practitioner concerning it is, as a rule, limited to the information gained by reading short and unsatisfactory articles on the subject in our text books, recently written. The scarcity of the disease is liable to cause the physician to overlook the real malady when a case is presented for treatment, and to refer to and treat it as a case of idiocy, due to causes unknown.

I am of the opinion that when we study the subject well, and can diagnose it readily, we will find and treat cases in our various counties who otherwise would die in early childhood, or else go through a brief and unsatisfactory life, accompanied by neither sunshine nor pleasure to parents or child.

In some portions of Italy, Switzerland, Germany and Russia cretins are found in great numbers. Travelers, observing the trouble endemic there, have not understood its nature or cause, and have believed that the unfortunate inhabitants of those particular sections of country were the degenerated remnants of a former tribe or race of people.

Knowing that cretinism exists in endemic form, we know that, reasoning from an etiological standpoint of other diseases, it must in such cases be caused by either climate, altitude, water, food, contagion or heredity. Inasmuch as it is found in hot or in cold countries, on mountains or in valleys alike, I am persuaded that neither climate nor altitude has anything to do with its development. As the character of food and water differs in these various countries, I am sure that neither of them acts as an etiological factor. By the existence of only one case in any community we know that it is not contagious. Heredity plays a very important part in its propagation. "Like begets like." Where one or both parents has a goitre, or any other disease affecting thyroid function, or where either parent has myxedema, the offspring is apt to be a cretin. It is an heredity local deficiency, rather than an heredity disease. An absent or deficient thyroid in the infant may be the result of a consanguineous marriage. Such unions should be discouraged by doctors and prevented by law. Now, inasmuch as the etiology of cretinism is well established, it is not difficult to arrive at a proper system of treatment. If it be due to the absence of a substance, which in health is supplied by the thyroid gland, the scientific treatment would be to supply this peculiar necessity to the cretin, and thereby promote normal metabolism. It is agreed by recent writings of authorities that this can be done by giving, in either liquid or dry form, the thyroid of a lower animal, preferably the sheep.

Thyroid grafting is also a means of relief, but as yet it has not been successful in a sufficient number of cases to give it the prominence due the internal administration of the gland. Grafting has for its object the permanent cure of the disease, while the internal administration must be continued during the remainder of the cretin's life, as it serves only to supply daily the vitalizing substance, which in health is supposed to be secreted by the epithelial

cells of the glandular alveoli, and to find its way into the circulation by first escaping into the lymphatics of the gland, and from them into the general circulation.

Grafting may be done in one of many parts of the body. Perhaps the most satisfactory place is in the infra-mammary region, on one or both sides. It is done by removing from a healthy sheep, under antiseptic precautions, the thyroid, and immediately placing about one-half of it beneath the skin and subcutaneous tissue of the cretin. If it becomes vascularized it acts as would a thyroid in health, and consequently serves as a permanent means of relief. Parke, Davis & Co. have on the market a thyroid preparation in powdered form, under the name of "Thyeroids." By the use of this preparation alone I have been instrumental in restoring to health, both mentally and physically, one unfortunate little girl of most excellent parentage, whose history I now briefly give you:

Nannie H., age 10 years, was presented for examination April 10, 1899. Her family history, as to health and longevity, is good. No consumption, scrofula, syphilis, cancer or goitre in the family; both parents living and in good health. She has two brothers, and one sister older than herself and one sister two years younger, all of whom are in good health.

Personally she presented the following conditions and symptoms: Height, three feet one inch; weight, fifty-six pounds; head rather large for one of her age, though not enormously so; anterior fontanelle not closed; forehead very low; hair coarse, lifeless and nearly red; nose flat, nostrils dilated; eyes dull and listless; upper lip very large and overhanging; tongue large and protruding; jaws puffed; chin receding; shoulders stooped; large abdomen; lumbar lordosis; skin rough and edematous, and does not perspire; temperature 97. The heart beat was very slow and feeble; apex beat was neither visible nor perceptible by touch. Her voice was raspy, and when talking, which she seldom did, words were spoken indistinctly and in monosyllables. Her vocabulary was limited to that of a child three or four years old. Childish plays or games of any kind were not fascinating to her, and she took no part in them. When put to bed at night she remained in any position given her by her parents until morning, when, after being dressed, she would stand or sit in one position a long while, unless told to move by one of her family.

There was neither sunshine nor smiles in her dreary life. She could not be induced to eat one-fifth the amount necessary to satisfy a healthy child of her age. In her early infancy she was a bright, pretty child, and enjoyed the best of health until she was two years old, and as long as she nursed at her mother's breast. These peculiar symptoms of disease began to develop shortly after she was weaned, and continued to grow more manifest as time passed. Dentition ceased, and the few teeth she had began to decay, and were soon of no value to her. From that time till after beginning of treatment, eight years later, she had no new teeth.

Diagnosis, cretinism. Treatment was begun April 23, 1899, by giving "thyeroids" in one-grain doses three times a day. I had her father weigh and

measure her, with reference to height, every two weeks. On May 6th, fourteen days after beginning of treatment, she had lost three pounds in weight, and all

who knew her could see a marked change for the better. On May 20th her weight showed that she had lost another three pounds in two weeks. Her mind was much brighter, appetite improved, would talk and play, had cut two teeth, and had grown one-half inch in height. June 4th, two weeks later, she had decreased one pound and a half. From that date she continued to decline in weight and grow in height, until July 15th, when she weighed forty-one pounds, a total loss of fifteen pounds in about eighty-eight days. After this date she lost no more weight, but continued growing taller, and her general appearance became much brighter, forehead higher, nose sharper, abdomen smaller, lordosis improved, the edema subsided, and heart beat grew stronger and faster.

Her flesh is now solid, like that of other healthy children of her age. Since she ceased losing weight (July 15, 1899, being the last time we had evidence of decline) she has steadily grown in both weight and height until the present time, when she weighs fifty-nine pounds—three pounds more than at beginning of treatment—and is three feet eight inches high, *a gain of seven inches in a period of twelve months.* Her sister, nine years old and in splendid health, has grown three inches in the same time, which is mentioned to show, by way of comparison, the cretin's growth. The cretin now eats as heartily as any child of her age, rides horseback, goes to school, runs, laughs and plays as do other happy children. She has all the teeth due at her age, and her mental condition is wonderfully improved. So great has been the change that her nearest relatives, if they had not seen her since the beginning of thyroid treatment, would not recognize her. To partially illustrate her changed condition I present for your inspection four photographs, numbered 1, 2, 3 and 4. No. 1 was taken two and a half years before beginning of treatment, and does not represent her benighted condition as it was when first presented for examination, as the disease was of a progressive nature, and had become more marked as time passed. No. 2 was taken after six weeks of thyroid treatment, and after she had lost eight pounds of weight and had cut two teeth. This shows the stunted condition of the child, but is a marked improvement since the beginning of the treatment. No. 3 is her likeness after ten weeks attention. Here the change is so great that comment on my part is unnecessary. But by it you can plainly see that both mentally and physically she is better than before. No. 4 represents her after taking "thyeroids" six months. From it no one would imagine that she is a cretin.

During her entire course of treatment, which is still in progress, and will be continued till thyroid grafting is successfully done, the dose of "thyeroids" has been one grain three times a day.

It is the opinion of the essayist, based on this personal experience and the recorded experience of others, that by the careful use of this remedial agent cretins can be as completely transformed as is the silk-worm by nature's aid, after enduring the storms of winter, and that no case, however grave, is beyond the reach of its benign and marvelous influence.

XXII. THE RATIONAL THERAPEUTICS OF TYPHOID FEVER.

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Whether the bacillus typhosus enters the human by inoculation, by the respiratory tract, or by the intestinal mucous membrane and glands, certain pathological changes and characteristic clinical phenomena are manifested. The pathognomonic lesions of typhoid fever are those of the intestines, the skin and the lungs. The clinical phenomena are dependent upon the presence of specific toxic principles developed in the system by the growth of the bacilli; and upon certain morbid anatomical changes. Loomis states the severity of an attack is in direct proportion to the diminution of the fibrin in the blood after the characteristic symptoms of the disease are manifest. Fever, vomiting and purging are produced by the typhotoxicon of Brieger, the toxalbumin of Frankel, or the ptomaine described by Vaughn. Parenchymatous degeneration, the nervous phenomena and heart failure are also due to toxemia. Perhaps toxemia is indirectly responsible for ulceration, consequently for hemorrhage. Most clinicians ascribe the severity of an attack to the degree of infection. Mild cases, the so-called walking typhoid, and an abortive type are thus accounted for. Dilution of the poison by the spring rains is said to make attacks at this time milder than those of the fall, when drouths have concentrated the poison. The relative immunity of the individual must likewise influence the severity of an attack.

McClintock has shown immunity in those having had one attack is due to the presence in the blood of certain enzymes. These enzymes, when brought into contact with the bacilli of typhoid fever, digest, or cause the bacilli to be dissolved. He further states that to say a germ-caused disease is self-limited conveys a false impression, because these germs do not live in the system until they exhaust a certain kind of food, as taught by Pasteur, but they remain until the enzymes appear in the blood, and then the germs are seen to rapidly disappear. Therefore the aim of therapy must be to hasten this immunity.

Certain "antibodies" present in the system during health may render an individual immune to a disease. This relative ability to resist disease probably has as much to do with the severity of an attack as the degree of infection. The question then arises, is it possible for these antibodies to so develop under favorable circumstances as to cut short an attack of typhoid fever?

It is universally conceded that the clinical phenomena are due to the toxin, and not directly to the bacilli of typhoid fever. It has been shown the enzymes not only do not control toxemia, but on the contrary are themselves neutralized by the toxin. Therefore, successful therapeutics must control the toxemia, and

nature develop the enzymes or antibodies. If the bacilli be destroyed toxemia must cease; and if no anatomical changes have occurred the symptoms also will abate. In cases of typhoid fever apparently shortened, it is probable such anatomical changes as ulceration do not occur.

Ulceration of the intestinal glands is due to the strangulation of the blood vessels by the inflammatory processes occurring alike in the mucous membrane, sub-mucous tissues, and glands proper. This hyperplasia occurs during the first week of the catarrhal stage. Pathologists describe the termination of this inflammatory process in the glands as occurring in three ways: First, resolution may take place by absorption, as usually occurs in the mesenteric glands; second, the central contents of the gland may be discharged, leaving a characteristic pitting; third, necrosis and sloughing may take place, causing the classical ulceration.

In an attack of short duration it is believed the catarrhal stage is so modified that resolution takes place in these glands by absorption, and the classical ulceration does not occur. It is probable that the symptoms manifested after the second week are due to ulceration of the bowels and auto-intoxication, and not from the continuous development of living bacilli. This is suggested by the fact that there does occur a form of typhoid fever, observed by Loomis and others, in which the eruption occurs early, and the fever subsides during the second week. Usually the height of the fever is reached before the second week, and begins to subside after the end of this time. Bacilli begin to be discharged by the bowels after the tenth day, and cease by the twenty-first; and all characteristic symptoms occur before the end of the second week. In any event, the indications are to destroy the bacilli and nullify the toxins.

The specific treatment of typhoid fever is by means of serum therapy. Typhoid antitoxin containing these enzymes eats up or digests the bacilli. Prophylactic treatment consists in rendering susceptible individuals immune by inoculation with typhoid cultures or typhoid serum. In ten days after inoculation the blood is said to manifest the presence of enzymes by its solvent action upon bacilli. Billings collected reports where inoculation had been practiced upon 2,335 susceptible soldiers. Only 0.95 per cent. of this number contracted the disease, and the mortality among those affected was 0.2 per cent. Where the attack had already begun under the influence of injections of typhoid antitoxin the symptoms are reported to subside in from three to seven days. Since serum therapy is the only known means of killing the bacilli, other therapeutic measures must be aimed at rendering harmless the toxins, and favor the production of the antibodies.

Roque & Weill observed the toxicity of urine in unmedicated cases of typhoid was twice as great as that of normal urine, and remained so through convalescence. The most popular therapeutic agent of to-day is the Brand bath. A mortality of from one to ten per cent. is claimed by its followers.

Some promulgate antisepsis, and the French school combines both baths

and antiseptics. The Brand bath may be considered generally as eliminative in its action upon the toxins. The action of the bath may be summarized as reducing temperature, controlling the nervous phenomena, increasing blood pressure, giving tone to the cardio-vascular apparatus, with consequent improved secretion and excretion, as manifested by the digestive tract and nutrition generally. Billings reports the toxicity of the urine in the Brand treatment as increased to six times that of normal urine.

The coal-tar derivatives, once popular on account of controlling the febrile and nervous phenomena, have been shown to delay convalescence, endanger the heart, and predispose to hemorrhage by increasing the toxemia. The toxins being locked within the system, the toxicity of the urine is greatly diminished until convalescence is established and the medicament withdrawn, when the toxins are again eliminated by the urine, as shown by its greatly increased toxicity.

The bromides, for which a great deal has been claimed, are perhaps physiclogically antagonistic to the toxins. They have been supplanted by the salicylates, which not only control the nervous phenomena, but promote secretion and elimination. The nucleinic group perhaps nearer approach the action of the antibodies than any other medicament.

Strychnia has been discarded, unless to meet an emergency, because it "keeps up the fever." Bouchard verified the utility of intestinal antiseptics. By the use of charcoal and insoluble antiseptics he rendered the stools practically free from microbes. The urine was more toxic than normal, but less toxic than usual in typhoid fever. This diminished toxicity, however, was due to the intestinal source of intoxication having been reduced to a minimum.

On this plan of treatment the mortality was 15 per cent. He then attempted systematic antisepsis. Antiseptic in the sense of so altering the "soil" as to render the bacilli incapable of multiplication. After experimentation, calomel was found to affect the organism more profoundly than any other drug. It shortened the attacks to twenty-one days.

Systemic and intestinal antiseptics combined reduced his mortality to 10 per cent. The same then claimed by Liebermeister for the cold bath treatment.

Baths at a temperature of two degrees below that of the patient were used upon the grounds of accomplishing all the ice application obtained without the suffering and opposition on the part of the patient. The intestinal and systemic antiseptics combined with this eliminative treatment reduced the mortality to 7 per cent.

At the present time we combine the eliminative, the systemic and intestinal antiseptic, the antidotal and supportive plan; and perhaps best favor the development of the antibodies and shortening of the disease. To the baths, the calomel and the non-absorbable intestinal antiseptics have been added the essential oils, antiseptics that are excreted by the lungs, kidneys and skin, and

are as tonic in effect upon the cardio-vascular system, and organs of secretion and excretion as the Brand bath. Also the salicylates, which control the nervous phenomena, and are antiseptic and eliminative in action, and proper and sufficient nourishment have been added.

The exact way in which calomel acts has never been thoroughly understood. The normal liver has been shown to arrest a large part, if not all, of the toxic material coming from the digestive tube. Gentle and natural peristalsis certainly improves the circulation and lessens the possibility of fecal matter adhering to the intestinal glands, and thus favoring irritation and hemorrhage. Calomel may render both to liver and intestines the needed aid. Metabolism is much less disturbed by this plan of treatment.

Although solid nourishment is permitted by some, certainly where the objects mentioned are held in view, a liquid diet is to be preferred. It is easier of assimilation, promotes excretion, and the residue is soft, besides being much more easily rendered antiseptic than solid or semi-solid food. Buttermilk meets these demands, and is deservedly popular.

Personally, it has appeared attacks of typhoid fever treated in the manner described have been rendered mild, or shortened from one to two weeks in their course.

In this paper it has been attempted to emphasize the fact that most textbooks speak of mild and some of abortive typhoid fever.

That relative immunity suggests a possible way by which therapeutic measures other than the specific enzymes may shorten an attack; that these therapeutic measures consist of absorbable and non-absorbable antiseptics, combined with eliminative, antidotal, and nutritive measures; and that a certain popular formula meets definite principles, and should not cause the drugs it contains to be tabooed because suggested in a routine formula.

That where medication is begun before the catarrhal stage has so progressed as to necessitate necrosis, resolution in the intestinal glands may be similar to that usual in the mesenteric glands, and take place by absorption, and not by ulceration.

That it is probable only the symptoms occurring before the end of the second week are due to a specific toxemia, the result of living and active bacilli, and that ulceration of the intestines and absorption of intestinal impurities perpetuate the symptoms after that time.

The cases personally observed have been given from four to six ounces of freshly churned buttermilk every three or four hours, and encouraged to drink as much water as possible. The nurse is instructed to sponge with either hot or cold water when the axillary temperature reaches 101 degrees F. Cold sponging is used, unless there is marked objection on the part of the patient; if hot water is used, it is used sufficiently hot to promote evaporation, and indirectly accomplishes the same things the cold does.

The drugs exhibited are calomel, turpentine, menthol, thymol, guaiacol

carbonate, and podophyllin in minute doses. Salicylate of methyl is applied externally, and not only controls the abdominal and cerebral discomfort, but reduces the temperature and promotes excretion. When the fever ceases to go above 100 degrees F., the nuclein preparations are added to the list to be taken internally.

The severity and duration of the attack, as observed, certainly bear out all claimed by Bouchard.

XXIII. MUCOUS DISEASE.

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Mucous disease is characterized by an irregularly occurring profuse discharge of mucus from the intestinal tract, accompanied by more or less marked nutritional disorder. Its clinical features have been worked out by Eustace Smith, Goodhart and other English observers, who have the opportunity of seeing many such cases. It is not of such frequency in this country, and our text books do not devote much space to its consideration. A great deal may be inferred from the few words with which they dismiss the subject, that these cases often last into adult life.

The etiology is usually referred to as an inherited tendency, either of the lithemic diathesis, hence its great frequency in England, or of the neurotic diathesis, in which it is related to a number of nervous affections. Goodhart describes it as one of the abdominal neuroses. It follows pertussis, perhaps, more frequently than any other of the infectious fevers, and it is also more common after severe diarrheal diseases.

Pathologically, no lesions of any importance are discoverable in the intestinal mucosa. Even the omnipresent micro-organism seems to play a very minor part in this disease.

There is quite a variation in the intensity of the symptoms from the simpler forms, in which the only feature is the passage of a mass of mucus at more or less regular intervals, up to the more severe attacks, which are attended by nausea and vomiting, colic, prostration, etc., lasting a week or more.

It must not be forgotten that the mucous membranes of the child are more prone to catarrhal conditions or inflammations than in the adult, as evidenced by the tendency to coryza, pharyngitis, bronchitis, and entero-colitis. Inflammations of the mucous membranes are more apt to extend by continuity and contiguity of structures in the young. The excessive formation of mucus which is peculiar to the child is not necessarily indicative of an inflammation; it is the result of the great number and the functional activity of the goblet

cells which are situated in the mucous membrane. They are hyperactive during infancy and early childhood.

In addition to this we find that the tissues of the intestinal canal, as well as of other parts of the body, are especially rich in mucin in the child, and this mucin is thrown out into the alimentary canal, where it unfortunately furnishes a good culture medium for the growth of various organisms.

In mucous disease we find an exaggeration of this tendency to form mucus so that at intervals there is a discharge of large masses of this substance, which may be stringy from the presence of mucin, or which may be almost organized and tough and membranous.

A child suffering from this complaint will present symptoms of malnutrition. The skin will be dry and scurfy, sometimes showing brownish discolorations. The sleep will be restless and disturbed, and other signs of intestinal irritation will be present, such as picking the nose, gritting the teeth, pallor of the upper lip, etc. There is frequently nausea and vomiting, the appetite is capricious and irregular. Food is often eaten ravenously, yet fails to yield its nutritive properties. The abdomen is distended by gas. The nervous symptoms include change of disposition, loss of memory, irritability of temper, and lack of attention. Melancholia and epilepsy, and even organic nerve affections, may be seen. The urine is scanty and high colored, usually containing an excess of urates. Indeed, the disease is much more frequent in families of a distinctly gouty or rheumatic diathesis.

Just previous to the passage of the mucus the tongue will be found abnormal and the breath sweetish or offensive. The more usual condition of the tongue is as if it were glazed. The tip is smooth and shiny, the filiform papillae are shorter than normal, the fungiform papillae are injected and look like specks of carmine. The tongue itself may be covered with a fur, or the epithelial layer may be shed in spots, leaving the bare, denuded surface—the so-called worm-eaten tongue—or it may be worn smooth and with a glazed surface; occasionally deep fissures occur.

A few days before the attack the bowels may become constipated, the breath more offensive, the restlessness and the nervous symptoms more marked. There may be a dull pain or uneasiness referred to the umbilicus, or to the lower part of the abdomen. The child may show evidences of prostration during an attack, but there is no fever; the temperature may even be subnormal.

Worms may be associated with this condition, as an increased amount of mucus is frequently found when intestinal parasites are present, but true mucous disease is not due to worms, and anthelmintic remedies, though often prescribed, are absolutely of no benefit.

The diagnosis of this disease is never difficult, the only disease presenting any similarity being tuberculosis with an intestinal lesion. This, however, should offer no serious difficulty, as tuberculosis will produce a rise of tem-

perature some time during the twenty-four hours. Even a careless and superficial observer would be able to differentiate the jelly-like, stringy substance from the organized section of a worm. The so-called "cut-up" worm, often gotten by the action of powerful anthelmintics, is really composed of mucin.

The treatment of these cases frequently taxes our therapeutic skill, for many considerations must be taken into account in selecting our medication. The inherited gouty or uric acid diathesis must be counteracted. Rachford describes cases of lithemia pure and simple, in which crises occurred similar in many respects to the crises of mucous disease. This feature, then, requires appropriate attention.

In the main, however, the treatment must be directed towards lessening the excessive amount of mucus which is eliminated during these attacks and checking its formation.

The food should be of a simple and easily digestible character, and should be principally nitrogenous. The fats, which would seemingly be of advantage, especially in cases with the dry, scurfy skin, are a source of irritation, and interfere with digestion. Even cod liver oil should not be administered internally. The carbohydrates also are injurious. The excessive quantity of mucus in the bowels produces a tendency to fermentation of the carbohydrates, with the formation of a gas and an acid which distend the abdomen and irritate the mucous membrane of the bowel.

The hygienic surroundings should be of the best. Sponging with cold water, sea salt water, or alcohol, followed by a brisk rub until the skin is in a glow, is most stimulating and helpful. When the skin is especially dry the bath should be completed by a thorough rubbing with hot cod liver oil, which will not only promote a better condition of the skin, but will add a necessary nutritional element to the blood. Flannel should be worn next the skin.

For the relief of the mucous accumulations the bitter tonics have long been noted. There are qualitative as well as quantitative differences in the action of these bitters. Nux vomica stands very high in this class of drugs, not only exerting fully the retarding influence of the bitterness upon the formation of the mucus, but also having a stimulating action upon the secretory glands of the stomach and intestines by reason of its content of strychnine, thus aiding digestion, which is weakened.

Bismuth has a sedative and mildly astringent action upon the mucous membrane of the bowel. In large doses it is, of course, distinctly constipating, but when given in small doses it exerts a less marked astringent influence. Bismuth is slowly eliminated, so that small doses suffice to maintain its action.

The need of a digestive agent in these cases is also evident, for if the chyme leaves the stomach without having undergone the proper catabolic changes it will not only require increased work on the part of the chylopoietic organs, but will itself be irritating to the intestinal mucosa. The gastric juice is deficient in essential elements, as the stomach shares in the general

run-down condition of the system. Acid hydrochloric is theoretically indicated in these cases, but few children are able to take it for any length of time without untoward symptoms developing. The combination of pepsin, bismuth and strychnin of the National Formulary has proven itself an efficient aid in such cases.

At the onset of an attack, or during the interval when constipation is present, sodium phosphate, combined with sodium sulphate, should be administered. The alkaline salt not only acts as a cholagogue, but also liquefies and renders less viscid the mucus present in the intestines. Sodium sulphate, as noted by Leube, increases peristalsis, even of the stomach, and has in addition a liquefying action on mucus. Thus the combination thoroughly eliminates the *materies morbi*, and so cuts short an attack.

Of a more decidedly curative influence will be found a combination of Lydrastis and sanguinaria. The marked results achieved by hydrastis canadensis in the treatment of chronic catarrhal troubles have long been appreciated by the profession. Its employment in cases of chronic gastritis or in catarrhal duodenitis, accompanied by jaundice, will prove most satisfactory. Its bitter principle not only accomplishes the results obtained from the other bitter tonics, but it has a directly stimulating effect upon the secretion of the gastric and intestinal glands. Its kinship to nux vomica and strychnin in this respect is not appreciated as it should be.

Sanguinaria is not so well known, but it has a selective action upon mucous membranes. In chronic bronchial affections it acts as a stimulant upon the cells of the mucous membrane, and from small doses a gently stimulant effect upon all mucous cells may be secured.

In conclusion, the valuable remedy, copper arsenite, must not be overlooked. To Dr. John Aulde is due the credit of bringing this remedy prominently before the profession. He claims for it a distinctly antiseptic action, which it secures by stimulating the cells of the intestinal mucous membrane to their normal activity, and to the elaboration of defensive proteids. I quote from Ringer: "Arsenic manifests an especial affinity for the mucous membrane of the intestinal canal." "Dr. Simpson employed arsenic in that peculiar affection of the bowels prevalent among women, characterized by the copious discharge of membranous shreds, accompanied by much emaciation. and a long train of neuralgic and other nervous symptoms." The copper salt of arsenic is preferable, because it is not so irritating to the stomach as the potassium arsenic, and because it is absorbed from the bowels and eliminated again by the liver in the bile, thus keeping the intestinal mucous membrane bathed in arsenic fluid.

In a somewhat large clinical experience, offering unusual facilities, I have found the treatment outlined above much more efficacious than that advised in many of the standard text books.

XXIV. GONORRHEA AND SOME OF ITS COMPLICATIONS IN THE MALE.

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Gonorrhea in the male may be termed an acute local infection, which may become chronic, due to the gonococcus of Neisser, and characterized by a flow of pus from the mouth of the urethra, painful micturition, and oftentimes an elevation of temperature, high pulse, furred tongue, and a hot, dry skin. It usually makes its appearance in from two to twelve days after coitus; the sooner the appearance the more violent the attack.

The first symptoms usually noticed are pain on passing water, and a drop or so of pus at the urethral orifice, or perhaps merely a tickling just within the meatus, which is followed shortly by a flow of pus and painful micturition. The size of the stream of urine becomes smaller, with the penis and lymphatics swollen and tender. In some cases, especially where the patient has had a previous attack, these inflammatory symptoms are absent, and we have only painful micturition and a flow of pus.

Treatment. In the treatment of gonorrhea, always remember that injections must not be resorted to during the inflammatory stage; therefore, until the inflammatory symptoms have subsided, I like to begin with "R., Santal oil, m. 10; salol, gr. 2; methylene blue, dr. 1;" given in a soft capsule three or four times a day. The methylene blue appears in the urine, giving it the characteristic blue color, and in this way reaches the seat of infection. This formula is a common one in Louisville, and while not original, has proven to be most useful in my hands. Other drugs, such as copaiba and cubebs, are of benefit, provided the inflammatory symptoms are not too acute, but are, I think, unnecessary when the above formula is used.

When the inflammatory symptoms have subsided we may commence to use injections, of which there are a number. A solution of potassium permanganate is my favorite. I usually give a few 5-grain tablets to the patient, with directions to dissolve one or two in half a glass of water, and use frequently. Zinc sulphate in a solution of from 1 to 3 grains to an ounce of water is good. I never use over 3 grains to the ounce. Pinus canadensis, one part to five to ten parts of water, is useful, as are solutions of lead acetate, tannin, alum, etc.; but while we have the potassium permanganate I prefer to use it. A solution of 2 grains to the ounce of water is most useful in irrigating. I do not like to use the nitrate of silver solutions in the male. Any edema can generally be relieved by cold-water dressings.

Direct the patient how to use the syringe, and warn him of the danger of

infecting the eyes, nose, mouth, etc. Prohibit coitus, the use of alcoholic drinks, coffee, tea, and, if possible, tobacco. Do not allow him to eat fried, greasy or highly seasoned foods, acids, etc., and encourage the drinking of plenty of water. Keep the testicles supported, and do not allow him to keep cotton over the meatus, as it obstructs the free flow of pus; but let him pin a piece of cloth to his shirt in front. Painful micturition may be overcome by passing the urine with the penis immersed in a glass full of hot water.

This finishes the treatment of gonorrhea proper, and we will now consider some of the most common complications.

Chordee, or the painful curving of the penis during erection, is very common. This occurs mostly at night, and is probably due to the warmth of the bed, though it may be caused by sexual excitement, or by the bladder being too full of urine. Chordee may be overcome by emptying the bladder, cold applications, or by full doses of the bromides at bed time.

Balanitis is "an inflammation of the mucous membrane of the prepuce and the glans penis, which is characterized by intense redness of the parts, and is attended by superficial excoriations." These excoriations must not be mistaken for chancroids. A differential diagnosis is easy, as the secretions from the excoriations of balanitis are not auto-inoculable; it is superficial, and yields readily to treatment. The treatment is cleanliness, and the local use of a solution of nitrate of silver, 3 to 10 grains to the ounce, and dusting with boracic acid, or calamine covered with a piece of lint or cotton.

Phimosis and paraphimosis are too well known to need a description. Treatment for phimosis: If you are sure of there being no chancroids, and there is no edema, circumcise. You run no danger of inoculating the wound if you are clean, for the secretion is not auto-inoculable. If the patient refuses circumcision, sub-preputial injections of warm water and cleanliness are usually sufficient if the phimosis is incomplete; but if it is complete, insist on circumcision.

In paraphimosis endeavor to bring the prepuce forward by compression of the glans penis, so as to squeeze all the blood from the part, making traction forward of the prepuce, and at the same time pushing the glans back with the thumb. If this be unsuccessful, make an incision through the constricted portion of the foreskin on the dorsal aspect. Finish the operation by circumcision when the inflammation and all thickening of the foreskin has subsided.

Gonorrheal epididymitis, usually unilateral, sometimes double, may occur in about three or four weeks, when the deeper portion of the urethra has been invaded, and is often the result of too frequent use of injections. The testicle becomes hard, swollen, and exceedingly tender. This condition has been called orchitis, but the body of the testicle is not affected, and the inflammation is limited to the epididymis. On examination, pain, redness and swelling are found, and the discharge from the urethra nearly always ceases, but will reappear later on. The acute inflammation usually lasts from five to ten days,

when it gradually subsides, the epididymis remaining enlarged, but not tender. This condition may be complicated by a hydrocele, which should be emptied by the use of a trocar and canula. In time the epididymis will usually shrink to its normal size, but, as sometimes happens, "the epididymis, as well as the vas deferens, is permanently blocked up, preventing the egress of the spermatozoa from the affected testis, and leading to partial sterility." Or perhaps suppuration may ensue, causing destruction of the epididymis, and perhaps of the testicle. The inflammation may extend to the spermatic cord, but as this is rarely met with I will not take the subject up.

The treatment of epididymitis is simple, and may be stated in a few words. Put the patient to bed, keep the testicles elevated, paint with tincture of iodine, and hot, or, better, cold applications to the parts. Use opium to quiet the pain if necessary, and keep the bowels open. From 5 to 15 minims of the simple tincture of iodine, well diluted, may be given internally three or four times a day if desired, but do not give the iodide of potassium, as its effect on the gonorrhea is bad. The use of leeches, strapping and multiple punctures are, in my opinion, strongly to be condemned as useless and unnecessarily painful. When the discharge reappears, give santal oil in 10 minim doses three times a day.

I will now proceed to consider the last complication, that of gleet. In the last stages of gonorrhea, when the anterior portion of the urethra has recovered its normal condition, there is noticed upon arising in the morning a drop of thin, white, or perhaps colorless, matter, which will not stain the linen. During the day it is not present, unless the patient commits some excess in eating or drinking, when it becomes slightly purulent. There is no pain while passing the urine, and the drop is only obtained upon deep pressure. In the majority of cases the use of a bulbous bougie will reveal one, or perhaps several, points of localized tenderness, which will resist the passage of the bougie. This is due to a stricture already formed, or perhaps in the process of forming. Remember that a gleet is nearly, if not always, the result of a stricture, and a cure of the latter will prove to be the cure of the former. If it is not due to a stricture it is due to inflammation of the deep urethra. In this case the formula given at the beginning of this paper has given me the greatest satisfaction. As to the removal of a stricture, that is too long a subject to take up now.

Prostatitis, cystitis, rheumatism, conjunctivitis, ophthalmia and venereal warts are sometimes the result of gonorrhea, but it is not my purpose to speak of these, and I will close by urging the necessity for strict cleanliness and a carefulness on your part not to overmedicate the patient, as the discharge is often prolonged by the too frequent use of injections, and if persisted in will cause the patient to lose flesh and become nervous. In this case stop all medicine, and let the patient eat whatever he wishes, with a light wine once a day, perhaps giving iron in some form, and you will be gratified at the result.

DISCUSSION.

DR. WALKER B. GOSSETT, Louisville: The paper by Dr. Gilmer is practical and the treatment given is good. I wish to speak of giving the patient a syringe and medicine and letting him use the injection four or five times a day. I do not like the treatment at all. When a patient comes to you with gonorrhea, begin to irrigate the urethra with a permanganate of potash solution, 1-10,000 or 1-20,000. Irrigate the urethra daily, and use a gallon of water, is necessary. Give no injection, but internal treatment, consisting of boracic acid, 5 grains; salol, 5 grains; and in three or four weeks the gonorrhea will be cured. Then you may irrigate once a day with a hot, saturated boracic acid, and that will cure your patient. If not, and you desire to give a simple injection, the patient can use a syringe. After you have cured the disease proper, or stopped the discharge with permanganate of potash, give a simple injection of some astringent solution, as the sulphate of zinc. With reference to epididymitis, the Doctor spoke of painting the testicle with tincture of iodine. This is the best treatment one can use. I do not like the treatment of painting the testicle with nitrate of silver. Tincture of iodine is much better, especially Churchill's compound tincture.

DR. C. W. HIBBITT, Louisville: In regard to the medicinal treatment mentioned by Dr. Gilmer, and which he recommends, I believe the use of sandal oil and copaiba have very little, if any, effect, except to disorder the stomach. I have had no good results from them. In treating a case of gonorrhea I believe a large amount of water, internally, and the local irrigation to be the best; no internal medicinal treatment; leave the kidneys alone. After the fourth or fifth day we might begin the irrigation; hot water, solution of bichloride of mercury, 1-25,000 or 1-50,000, or numerous other solutions may be used.

The use of injections locally with a syringe simply irritates the parts and prolongs the trouble. Have the patient come to your office daily; impress upon him to be regular. Treat him yourself; do not let him do it. Irrigate the urethra every day. We cannot at least pronounce the case cured until the discharge has disappeared, and the sound has been used for at least one week.

DR. GILMER (closing the discussion): I want to say, in reply to Drs. Gossett and Hibbitt, that while I am an advocate of irrigating to a certain extent, I believe that too frequent irrigation is bad, for the simple reason that by so doing we are apt to force the gonococci farther back into the urethra and set up a worse condition than we had in the beginning.

As to internal treatment, the beneficial effects are not so much due to the use of the oil of sandal wood as to methyl blue. This may be given in doses as high as two grains, combined with pepsin, if desired, or oil of nutmeg, and I think salol and methylen blue internally are about the best agents we can use in the treatment of this disease.

As to the drinking of water, I heartily concur in the remarks of Dr. Hibbitt. I encourage my patients to drink water freely; the more water they drink the more urine will they excrete.

In regard to passing the sound, Dr. Hibbitt is absolutely correct. I left out one point in my paper in speaking of epididymitis, and that is the painting of the testicle with liquid guaiacol. I have not personally used it, but others who have employed it say it is of the greatest benefit, and they highly recommend it.

XXV. SOME REFLECTIONS, PESSIMISTIC AND OPTIMISTIC.

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To one who is thrown in daily contact with the chronic sufferer, into whose ear are dinned those tales of long trial and much suffering, who sees the terrible results of a compounded, vicious cycle of existence, is apt, if of a reflective nature, to ponder upon the cause or causes, direct, indirect or remote, upon whose action or through whose agency results pitiable in the extreme have been brought about; and when we project these cases, the flotsam and jetsam of human pathology, before our eye in a reflective panoramic picture, certain thoughts arise, and to give voice to these seems both meet and proper. Of all the professions, the physician is probably given more opportunity for the close observation of the human race, freed from the trammeling influences of restraint, social etiquette or diplomatic action; and were he granted the time and opportunity from an active wrestle with death and disease, could not only illumine the darkness of many problems, but reach them practically in his daily contact. I have often asked myself the question, after some unusually distressing case has made me thoughtful, "What really will be the outcome of the American people if they continue at the present rate?" The vast stream of humanity is not striving toward that goal which should be the symmetrical development of the highest type of man and woman, physically and intellectually.

Can one refuse the experience that daily contact gives, and say that to-day there are being born into the world little ones whose destiny—mental, physical and moral—is not doubtful? These little exotics of highly neurotic tendencies are but the "little men and women" who later on are expected to furnish the brain and the brawn of our country. With the opening year of the twentieth century we find problems confronting us that the thoughtful practitioner must consider, or certainly fail to fully appreciate the wonderful and nerve-wearing conditions under which we live.

Five or ten decades ago the pristine forests marked many portions—I might say nearly all—of our State. The mocking bird sang sweetly in the branches of the great oak; the eagle swept majestically over the muddy waters of our rivers and preyed upon the finny tribe; deer dashed through the forest or fell under the paw of ursus minor; the turkey and the duck called contentedly from the water and the cane, and all nature seemed pervaded with virility—a strength born of virgin soil. Into this region comes the pioneer, sturdy of purpose, strong of limb, who, under great difficulties, by bravery

and brawn, subdues the forest and made it to blossom with the gloriously tasselled corn and hemp. With the dusk of departed day he slowly returned to his home, where simple joys and tender love awaited him.

From the loins of such ancestry sprang not the hot-house exotic, nurtured by artificial foods, whose existence even was doubtful, but a child who, in its turn, would be the parent of health and strength. His or her rearing was conducive and preparatory for grappling with real life. They went to school through the vast forest, listening to the music of rustling leaves, their cheeks fanned by the forest zephyr, in the shadow probably of the bold and majestic mountain, while across their path babbled the mountain brook, from whose cooling waters they drank long draughts of nature's beverage. They rode or walked, and thus were brought in close contact with the sublimest of all things, nature herself; wrested from her the hidden secrets of flora and fauna, and consciously or unconsciously communed at the foot of that altar from which all regeneration must flow. Their hours of school life were short, and their sturdy minds grew slowly and perfectly—after His image—and their intellectuality assumed the type of which their physical bodies were a counterpart, and their steadfastness of purpose, concentration of thought, and an innate mental depth, together with a fecundity of ideation, became a marked characteristic of these men.

They gradually grew to know their feathery and furry friends, and learn the wise and thoughtful provisions of an all-seeing Providence, unmarred and untouched by man's handicraft; where the wild flower and the lily, though they sow not, neither do they spin, yet spring again into perennial brightness, carpeting the earth and making her, in her coat of many colors, the cradle and the grave of healthy, normal man. By no mental process devised can we turn from the fact that man never was constituted for urban life, his heritage and sphere being the land itself, canopied by heaven's arc of azure blue. And though stigma upon stigma of degeneration may, with unerring finger, point the way toward the broad and downward path of social deterioration, degeneration and death, still must we look to the earth to return to us noble specimens of strength and health for the regeneration of the race. To these, say I, keep the purity of body, mind and morals above all other things, realizing the crying need. But have we even in the rural districts to-day escaped the envenoming influences that are slowly but surely deteriorating the race?

Instead of the youthful people of the country realizing the danger, we find that there is to-day a continual stream of young men and women leaving the country life and massing in the centered or populous cities of our country. The intervention of modern methods of city life, turning night into day, together with the constant desire to "see life," leads to such late and irregular hours, that nothing but a cast-iron constitution can stand the strain. Can one see the terrible effects of crowded population in the "sweat-shop" without realizing that in these mental decline, physical decay and moral stagnation

result, and that from out of which, flowing in a sluggish, foul and offensive stream, taint the population and form a center of degradation and corruption from which nothing but crime can possibly arise?

Look back at some of the noble specimens who survive three generations and ask yourselves if three generations hence we will produce from out our loins such men and women. Physical and mental degeneracy have taken hold, and unless we endeavor by every means possible to correct our weaknesses and mend our ways, succeeding generations will have much to mourn.

To the educator permit us to propound the proposition, "Are you, by your methods of instruction, mental and physical, so training the infantile mind as to bring about mental and physical development and equipoise?" In those golden days of yore, upon which I have lightly touched, we found the young mind untrammeled by long and crushing hours of school life, for not only were the hours short, but the term at best was brief. These primitive children, descendants of pioneers, were, by their training in the natural field, by inherited aptitude, by precept and principle, taught the necessity of self-reliance, independence of action and thought, and in their slower, but surer, development, body and mind simultaneously grew until we found them *mens sana in corpore sano*. Sturdy mentality, capable alike of long and laborious work, of great stability, was usually coupled with that dogged determination that plumbed the depth of the bottomless pit or granted reasonable assurance of its non-existence. In those days the young did not commence educational tasks until the brain was capable of sustaining the work thrown upon it, and I reiterate the brain slowly absorbed its education without wear and tear, without the friction that now besets us. Let us look at these—I am compelled to say very numerous—children of today. The present generation of tired men and women are daily and hourly committing the gravest of sins in bringing into this world so full of trial, tribulation and sorrow, children whose frames and brains are incapable of standing the stress and strain of life. These children bear the transmitted weaknesses of the parents on one or both sides, whose tendencies are strongly toward disease, or even crime. The mother, from whose loins he sprung, unable to nourish the infant from nature's font, and from whose pearly stream health and joy and love should spring, smothers his weakling cry or checks his puking stomach by means of artificial food stuffs, or stifles his pangs and sufferings with catnip tea, paregoric, or a cleverly delivered solar-plexus blow, in the shape of a warm, weak toddy, or a strong one, for that matter; and should this fail, we physicians are called upon to administer some anodyne or narcotic to quiet its indigestion or check its "nervousness."

In my special practice of nervous diseases there is never a time when children from 3 to 12 or 15 years of age do not form a reasonable percentage of the clientele. Can you wonder that here, in the very cradle, have been and are being laid the foundation stones for the large number—increasing yearly—

who are becoming slaves to alcoholic liquors or to the heart-rending influences of narcotic drugs? This imaginary youngster, after undergoing teething spasms, chorea, pavor nocturnus, or any of the lesser and commoner neuroses of childhood, with his swaddling clothes barely laid aside, is seized in the talons of the present educational system and subjected to strains his brain cannot bear.

Instead of possessing kindergarten knowledge, instead of being "smart" and "cute," I would much prefer a child who was even quite dull, but upon whose mental tabulus had been engraved the unwritten tales and beauties of Dame Nature herself. But having once "struck" the kindergarten, he must mercilessly follow out the "system" laid down until, when he leaves high school or college, he has become the finished product of a modern civilization, glasses on nose, asthenopic of eye, irritable of brain. During his early and precious hours of childhood, when his brain cells are as sensitive as the camera's plate, when his busy brain is storing up images for future reference, we find all the disadvantages of this system. Despite his qualifications, he is pushed forward, his little cranium wearied by an endless stuffing process, his nerves harrowed by approaching or existing examinations, until, from the pressure upon his developing brain, an irritation is developed that lasts all his life, and frequently masts the symptoms of disease entirely out of the domain of the nervous system.

I have not come here to preach, but to call attention to facts that, were they appreciated by the laity, could and would be prevented. It is here that our province as a profession comes in, and I may add that especially does it become the function of the family physician to be cognizant of these facts and educate his patients. Our function can be, and does become, the highest of all the attributes of scientific medicine—viz, preventive. We must teach the parents that the symmetrical and slow development of body and mind are essential to good health in childhood and adult life. We should instill into parents the necessity of a physical perfection, that would make this great republic a nation of giants, and that the grandest of all possessions is a well-balanced, well-developed mind, with such reserve force and power as will grace and adorn a worthy civilization.

If there exists in your mind the belief that I have in one particular over-estimated existing facts and conditions, a conscientious study of our feeble-minded asylums, insane hospitals and penal institutions will afford much food for reflection. The vast army of neurotics, the weak, vicious, hysteric and neurasthenic, the product of a faulty inheritance and false living will cry aloud in such tones as will overcome a doubter of doubters. Spend a few moments each week and note the fearful increase of insane, of those whose death is due to organic disease of the nervous system, and you will find apoplexy and paresis of such common occurrence as to merit a fixed position on the calendar of a city's death list.

Of all the relations of life, none are more sacred, none more important, than that of marriage, and it seems to me that maudlin sentimentality and hysterical raving are taking the place of good, hard-rock "horse" sense in such matters. Far be it from me in the slightest to belittle that most noble of all passions, the pure and normal love of man and woman for one another; yet there must be at a certain time, in the growth and development of *amour propre,* the exercise of good judgment and much common sense. Do not believe me devoid of the finer ethical senses when I say that were marriages in the human contracted with the care, judgment and study that breeding is in the lower animals, some of the diseases existing to-day would be stamped out and others greatly modified. The problems involved are such as do not apply to the couple alone, but to a generation or generations unborn, and upon them the sins of the parent are apt to be placed. For ten years I have taken the trouble to inquire into the family history of those cases who have sought my medical advice, and it is simply astounding how many tendencies are passed from one generation to another. Look carefully at the children of a couple and you will notice a physical peculiarity, an automatic movement or mental characteristic, we know has been handed down from parent to child.

The fruition of healthful love, the cementing of conjugal happiness, the link between the past and future, are the children. They are the helpless ones, dependent, all-confiding, with their winning ways, entrenching themselves in the inmost chambers of the heart. Every pang they suffer, every affliction they bear, is just so much misery and suffering to the two human souls who have brought them into this human, but far from humane, world. Think of the horrors of some cases, who, casting aside all the canons of medicine, in the face of well-known laws, or perhaps in ignorance, marry and propagate children, whose doom is forewritten long before they ever saw the light of day. Is there an intelligent medical man living to-day who would like to see a young man or woman with tubercular tendencies contract a marriage? Nor yet should a marriage of a healthy person with one of phthisical tendencies be permitted, for it is a fact, and I have often confirmed same, that the tubercular, where they do not propagate phthisical children, often produce neurotic or degenerate offspring. The powerful influences of alcoholism, morphinism and allied drug habits, in producing offspring that form a class from which the ranks of crime are daily recruited, is well known.

The people must be taught that the *insane* propagate progeny whose tendency is not only toward the development of this most terrible of all affections, robbing its victims of all those delicate qualities that civilized society, and which rest upon humanity as the delicate blossom upon the peach. From these unions the pauper, the idiot, the degenerate, the neurotic and the tubercular develop, to become a burden upon the healthy and a tax upon the Commonwealth. These marriages result in family degeneration, and this, coupled with an environment that is favorable, places the weakly developed mental

powers of the degenerate to a test he cannot stand. That hereditary entailment is a fact in the insanities is probably established on as firm a basis as any of the facts of medicine, though the insane may transmute the condition in the transmission. How many times can the surgeon and gynecologist point to the constant influences of gonorrhea and syphilis in the production of diseases of women? Day after day suppurative diseases of the ovaries, diseases following abortion from syphilis, bring the hapless, helpless, guiltless sufferer to the operating table, depriving her of her highest function and mutilating her for life. Were this all it were enough, but this is merely the beginning, for on such soil are sown the greater and minor neuroses, and she passes from surgeon to neurologist, through all the gradations of sufferings.

The time is not ripe yet for legal and statutory regulation of marriage. The people are slow to learn at best, and our profession is not educating them as it should; but the time will come when every man and woman will have the right individually, and the State will demand that a clean bill of health is essential. It will bar the tubercular, cancerous, insane, epileptic, habitual drunkard, gonorrheic and syphilitic from marital rights, both because of the danger to the contracting parties themselves, to the effect upon their progeny, and because of the possibility of them or their children becoming a burden upon the Commonwealth. Natural laws are inexorable. The vast per cent. of the population possess comparatively little scientific knowledge on these subjects. They must be enlightened, for science is the beacon light of future hope. Shall brutal passion rule and intelligence stand aside? For if this is done, the only hope of the nation disappears. Purer men, purer women; men and women freed from the enthralling and trammeling influences of a faulty heredity; men and women who live in the purer atmosphere of knowledge and keep mind and body clean; men and women to whom natural love comes as the flowering of the lily, to whom maternity and paternity comes as a blessed light to fill their hearts and homes to overflowing; men and women who refuse to perpetrate crime upon generations unborn; men and women who refuse to perpetuate disease, passion, crime and vice in offspring, who, when in the shadow of death or the gallows, will, with clenched hands, curse the twain that brought them forth. A few such generations, with careful training toward physical perfection, would produce of us a nation of giants, full of courage, endurance and power; a nation from whom philosophers, orators, poets and artists would spring; a nation, the flower and fruitage of which, in art, literature, architecture, painting and science, would hold spell-bound the student, and defy the decaying influences of centuries yet to come.

XXVI. VACCINATION PRIOR TO, DURING, AND AFTER SMALLPOX.

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The discovery of vaccination has often been ascribed to chance, but chance, here as elsewhere, only indicated the way to success. To the keen observation and persistence of a gifted student all honor is due. While still a student at Sudbury, Jenner met a young woman who declared that she would not contract smallpox, since she had already had cowpox. This assertion was never lost to Jenner, but served as his guide for future experiments that revolutionized the history and management of variola. Others before him had heard similar statements, and had had opportunities for study; but Jenner's distinction over his colleagues is that he appreciated the value of this fact, and proceeded to demonstrate scientifically to the world the truth of what this dairy maid had stated to him, that once having had cowpox they were not susceptible to smallpox.

Jenner was not the first to make use of vaccination. For centuries it was a popular belief among farmer folk that once having had cowpox immunity existed from smallpox; and it is said that the notorious Duchess of Cleveland, replying to some joker who remarked that she would lose her position if disfigured by variola, said that she was not afraid of so losing her position, as she had already had cowpox. Jesty, a Dorsetshire farmer, had cowpox in 1774, and successfully vaccinated his entire family. Sure of the protection afforded by vaccination, he went to London, to the inoculation hospital, and defied the physicians to give him or any member of his family smallpox. Thus, with a grand discovery thrust into their hands, they failed to see anything extraordinary in the statements of Jesty, and the greatest discovery of the ages was left for Jenner to proclaim and establish.

The active elements of vaccine are not known. Chemical and microscopical examinations reveal the presence of no special elements to which we can attribute the peculiar activity of this immunizing agent, but it is sufficient to say that immunity is rendered *entirely* in most cases, and partially in *all*. Sanitation cannot account for the diminution in smallpox and for the low rate of mortality. Isolation, of course, prevents many cases, but cannot be relied upon as a substitute. Vaccination and revaccination is the only safeguard against this loathsome and highly contagious disease. It has entirely stamped out the disease in the German army, and so it is in this country, where vaccination has been thoroughly practiced.

Contrary to the general opinion, I do not believe that vaccination ever

loses its efficiency, and if at all, only to a slight degree; and on the other hand, a recent vaccination, say of two or three weeks' standing, is less protective than one, two or three years, or even twenty or thirty years. I have seen something over 200 cases of smallpox during the last year, and only in five instances has the disease reached the eruptive stage in those vaccinated successfully prior to exposure. Of these cases, two had very indistinct scars, the third had passed thirty years since vaccination, the fourth thirty-five, and the fifth fifty-two years; and in each of the above cases the attack subsided with a very slight eruption.

In other cases protected by vaccination and exposed continuously to variola, I have seen a few patients go to bed with violent chill, headache, pain in the back, nausea, etc., and on the third or fourth day recover without further symptoms. I firmly believe that smallpox is frequently aborted, just at this stage, and that you are reasonably safe in diagnosing such cases smallpox, although no eruptions appear. From the 200 or more cases above mentioned, several were exposed who had been successfully vaccinated, and, as above cited, only five developed the disease to the stage of eruption, notwithstanding the fact that many remained with those affected, acting as nurse, etc., and in nearly every instance of exposure to those unprotected by vaccination, smallpox has developed.

To illustrate more clearly, the history of two families is given. In one, consisting of ten members, all contracted variola except the father, who had had the disease years before; in another family, consisting of nine, the one member unprotected by vaccination developed the disease, and although the remaining eight were confined in the same house, which was small and isolation impossible, for four weeks not one developed smallpox.

That vaccination is protective there is no question among medical men, and it is now practiced everywhere, except in those cases where ignorance and superstition exclude the light of reason and philanthropy, but the exact relation that exists between the two conditions is not clearly established. That the essential elements of vaccine matter and the cause of variola are two separate and distinct agents there is no question in my mind. A person vaccinated after exposure frequently develops both, though the smallpox is more mild than otherwise; and again I have noticed patients develop chill and other initial symptoms of smallpox on the day of vaccination, and both go on simultaneously, the vaccination in no wise lessened or modified by the smallpox, although the latter seems modified by the former. As to vaccination after smallpox, you might reasonably conclude that if smallpox will develop upon recent vaccination, and if the two will go through with their different processes simultaneously, why not vaccination develop immediately following variola? Reasoning from the above point of view, I vaccinated three negroes the day of their release from quarantine, and in each case with good results, showing each successive step as though smallpox had not existed.

By way of recapitulation, I want to state that vaccination never loses its efficiency, and that the immunity is to some extent even transmitted from parent to child, or why the mildness of the present epidemic? That variola and cowpox are not identical, that you may have both at the same time, or either directly following the other—but if time is given, say two or three months for the immunizing agent to do its work—I do not believe that you can inoculate with either.

DISCUSSION.

DR. B. W. SMOCK, Louisville: Having had some experience in the last three or four years in searching for cases of smallpox over the State, I want to make the statement that a successful vaccination produces immunity against any kind of smallpox. We are frequently confronted with the statement as to what is a successful vaccination. My answer is that it is one which protects against smallpox. Who has that? I for one have one of those kind of vaccinations. How do I know? Because I have been subjected to many exposures of malignant smallpox. After listening to the excellent paper of Dr. Mosely, I must say that I concur in much that he has said. I do not want to find fault with him, or to wage war with any man who reads any kind of paper before a Society in which he advocates vaccination. But there are some fellows—members of medical societies—whom I like to criticise, particularly the anti-vaccination cranks. I do not know whether there are any here or not, but I am inclined to think there are. We have them in Kentucky; we have them all over our State. In sanitary work the greatest trouble we encounter is from the profession. This may be a surprise to some of you, but it is nevertheless true. Some physicians are always ready and willing to get into a fight with a lawyer. My experience has been that when we have had the most trouble in enforcing vaccination it has not been the fault of lawyers or of the courts, but the doctors themselves. I wish to mention a recent experience in Fulton county in point. A certain physician took the ground that smallpox was not prevailing in that county, and he said that the members of the State Board of Health wanted to rob the taxpayers. That man unfortunately was a member of the local board. We have with us this morning a distinguished gentleman from Southwestern Kentucky; he has the reputation of being the best health officer in Kentucky, because it is said that he has the best vaccinated county in the State. We have with us another gentleman, who said that three years ago a suspicious case was isolated, but it afterwards proved to be chickenpox. However, on account of the suspicious nature of the disease, everybody in that county and town was vaccinated. As a consequence, thousands of dollars have been saved to that county.

As the program is full, and we have all been vaccinated and revaccinated, I will close by asking each gentleman of the Society to talk vaccination from now until next year.

DR. C. C. LEWIS, Stamping Ground: I occupy a position at this time which makes me feel that this matter of vaccination comes close home to me. I am a member of the Board of Health; I do not say this boastingly, and I am in daily contact with cases of smallpox at this time. I must beg to differ from the previous speaker with reference to re-vaccination. I believe that one vaccination in life is sufficient protection. The idea that the tissues of the human

body undergo changes every five, ten or thirty years is hardly tenable, as applied to re-vaccination, and there is no means by which we can arrive at a definite conclusion as to when we should be vaccinated. Of course, doctors may take the precaution to vaccinate when we are in danger, but I am one of those who believe that if I am once protected I am always protected, or else I should be in a condition to contract the measles or some other exanthematous disease.

DR. T. B. GREENLEY, Meadow Lawn: I wish to say a few words in regard to the protective effect of vaccination. I was vaccinated when two years old, and after thirty-five years I had the first case of smallpox come under my observation and care, and within sixty years after I was vaccinated I spent the winter in New York. I saw a number of cases of smallpox there, and got re-vaccinated for fear I might take the disease. But it did not take. I believe perfect vaccination is a protection for life.

In regard to the time of preventing the occurrence of smallpox after people have been exposed, I can say this: that I vaccinated fourteen members of one family who had been exposed to the disease, and none of them contracted it. I think if we can vaccinate people after they have been exposed, say, for six or eight days after the contagion, it may prevent the virus from entering the system, and thereby guard against the occurrence of smallpox. As a rule, I believe it takes about fourteen days after exposure before the disease develops.

DR. F. J. YAGER, Campbellsburg: This is a very important subject, because I have passed through certain conditions and circumstances in life that make it appeal to me as of great importance. When I was about fifteen years of age I was vaccinated. In my case there was considerable fever, and I felt the vaccination very keenly, but soon recovered from the effects of it. Since that time I have encountered several cases of the disease in my practice. I recall the case of a young woman who had a virulent and confluent form of the disease, so much so that we thought she would die. We had consultants in this case. We did not know as much about smallpox then as we do now, consequently it was much more difficult to make an accurate diagnosis. For eight or ten days this young lady had a high fever; her brain was affected, and it was thought that she would die of brain fever. The case from the onset was typical of smallpox. There were at least twenty-five black and white members in the family, who had never been vaccinated, except the white mother. I impressed upon the members of this family the importance of vaccination, and succeeded in vaccinating all of them. I told them I would re-vaccinate until I saw they were well protected. I found it necessary to re-vaccinate some of them, and by exercising great care in these cases there was not a single member who contracted the disease, except the young lady, whose case was confluent.

DR. H. A. COTTELL, Louisville: We have had a very interesting talk from two venerable members of the Society, and their remarks remind me very forcibly of the teachings of a great man who held the chair of Practice of Medicine in the University of Louisville when I was a student—Professor T. S. Bell, whom many of you knew. He took the ground that one successful vaccination was good for a lifetime, and he had no patience with any one who suggested re-vaccination. But he said you must have a true Jennerian vesicle. While it is true enough, perhaps, that a successful vaccination will protect for a lifetime, we do not always know whether or not the vaccination was successful. The doctors are often at fault for not inspecting carefully the vesicles

upon the arms of children, being sure that these vesicles have the true Jennerian characteristics. In view of that fact, while I hold the position taken by Dr. Smock is impregnable, I quite agree with Dr. Lewis, as a prudential matter, that whenever smallpox comes around we had better re-vaccinate everybody. I have followed that rule with reference to myself. Before I was a medical student I remember being exposed to smallpox and immediately getting vaccinated. The result was a sore, but not a Jennerian vesicle. Later, as I was engaged in the practice of medicine, I became exposed to smallpox time and again, and always vaccinated myself immediately, obtaining, however, always imperfect vesicles. So, in my own case, I do not know whether the primary vaccination to which I submitted has protected me so far during my lifetime or not. I was again exposed to smallpox a year ago last winter, when we had so many cases of the disease in Louisville. I was called one night to attend a woman sick with high fever and having a miscarriage. In looking around the room I saw a girl broken out with smallpox. I immediately came to the conclusion that the woman was also a victim of the disease, and had miscarried in consequence of it. It was necessary for me to extract the fetus and secundines. There was considerable hemorrhage. I tamponed the vagina. I had an exposure of about one hour to smallpox contagion in a close, stuffy, up-stairs room, among poor negroes. No one could have been more thoroughly exposed to the disease than I was. I went back several times to look after the patient. As a precaution I vaccinated myself the next day and got an imperfect vesicle, but I had no smallpox.

My chief object in rising was to say a word or two in reference to the position taken by the essayist, which I think perhaps is assailable, and that is vaccinia and smallpox are separate and distinct. I do not think any man, with the facts before him to-day, can state that dogmatically, although doubtless some facts which seem to support the theory have been advanced. The statement that one who has had smallpox can be made to develop a true Jennerian vesicle, while it may be true, does not prove the position by any means, since one may have smallpox two, three or four times; and the great fact that all our vaccine virus (the bovine virus we now use) is derived from heifers which were primarily inoculated with smallpox, compels us, I think, to regard vaccinia as a modified smallpox. However, until the microscopist is able to demonstrate beyond question the specific microbe or plasmodium in the smallpox virus, or in the vaccinia, the question may be debatable.

Dr. R. Alexander Bate, Louisville: In a paper read by Dr. McClintock, of Detroit, at the meeting of the Mississippi Valley Medical Association, held in Chicago, entitled "Enzymes and Immunity," he clearly shows why vaccination prevents the occurrence of smallpox. He draws a little blood from a calf, then vaccinates the calf; waits two weeks, and again draws some blood. With the blood serum obtained from the bleedings he mixes some active vaccine virus. "After a bit he vaccinates a healthy child on both arms, using one of the samples of vaccine for each arm. It will be found that the vaccine mixed with the serum from the vaccinated calf is inert; that with the serum of the same calf before vaccination is active. Repeat this experiment with blood obtained from horses, hogs, monkeys, or men—the result is always the same. The blood of any of these animals before they are vaccinated has no ill effect on vaccine virus, whereas after vaccination it rapidly kills it. The blood of men and animals who have recovered from smallpox contains this anti-virulent substance—the power to kill vaccine. All that we know leads us to believe

that recovery from smallpox or vaccination is due to the development of this substance." Therefore, these anti-bodies found in the blood after vaccination confer immunity to smallpox.

DR. A. T. MCCORMACK, Bowling Green: I have listened to the discussion of this subject with a good deal of interest. It is hardly necessary to say much about the practical methods of the prevention of smallpox to this audience. The physicians present, at least most of them, know the facts so well from actual experience in the last two years that it is hardly necessary for me to reiterate them. It is especially important that the leaders in the medical profession who do consultation work, and who do not attend medical societies as frequently as they ought to do, should know that chickenpox is not a disease of adult life. I have collected the views of seventy-four authorities, and of those only one is certain that he has ever seen a case of chickenpox in an adult. I have seen a number of doctors who have had many cases of smallpox and have treated them for chickenpox. The most important step to prevent an outbreak of smallpox is to vaccinate every single person who has been exposed to the disease in three places on one arm with three different points, or tubes. If you buy these points from a local druggist, the chances are that they are not fresh. A new supply should be procured and kept in a refrigerator. The reason why vaccination does not protect in many instances is because the virus is impotent. It is my practice to vaccinate people who have been directly exposed to the disease in three places on each arm, doing the German shoulder-strap operation.

DR. W. W. RAY, Springfield: There is one phase of this subject that has not been sufficiently emphasized. I do not think it is necessary to advocate vaccination or quarantine to doctors who are thoroughly educated in regard to the science of medicine. But doctors are not all scientific in their methods. I live in Springfield, and in Lebanon, nine miles from Springfield, we had a few cases of smallpox last year. Our people and our doctors became excited; they wanted to quarantine against Lebanon. My colleagues on the local Board of Health wanted to quarantine against this town. I said to them that quarantine is not a preventive against smallpox, but that vaccination is the remedy. We cannot rely on quarantine; we cannot make it perfect. They wanted to quarantine. The most important and influential people in the community urged me to quarantine. I had to get very stubborn, and explain to the people as best I could that quarantine was not their source of immunity against smallpox, and I must say that the physicians were the worst people I had to manage. One of my colleagues on the local Board of Health came to me very much excited. I said to him, "Doctor, when were you vaccinated last?" He replied, "About thirty years ago." I said to him, "Has every member of your family been vaccinated?" He replied, "Neither one of them." There were several members of the family who had not been vaccinated, and yet he wanted to quarantine against a disease for which we have a sure and absolutely protective remedy. This physician was unscientific, and the sooner other members give up the idea of quarantining in cases of smallpox the better it will be for the people.

DR. WILLIAM BAILEY, Louisville: I scarcely feel like occupying the time of the Society, yet I have some thorough convictions regarding the question of vaccination. I had occasion last fall, before the American Public Health Association, to read a paper on the "History of Vaccination," and I want to say, without detracting from Jenner in the slightest degree, that I found in

my investigations enough to convince me that it was not a discovery on Jenner's part. Jenner simply found in Gloucestershire, among the people associated with dairies, that they did not have smallpox, and he had the force and courage to carry on his investigations and to bring them to a successful demonstration, that vaccinia was a protective against smallpox. There was vaccination directly from the cow before there was any history of Jenner making this as a relief from smallpox. This, I think, has been clearly proved; yet it does not detract from the honor to which Jenner is justly entitled, and the world gives it to him. I am thoroughly convinced that there is no more protection from vaccination than there can be from smallpox itself, and I want to go on record as saying that I do not believe any man knows when he is protected; consequently the safe rule is to vaccinate whenever there is any exposure. I do not think it is reasonable to expect that vaccination will give us better immunity than comes from the disease itself. We know that people have smallpox a second, a third, and fourth time in their history. One woman contracted the disease five times, and would have had it a sixth time if she had not died during the fifth attack.

I believe that a great hindrance to the work of the State Board of Health in the control of this disease has come largely from doctors. I am sorry to say it, but in some towns one doctor will pronounce a certain case smallpox, while one of his competitors will maintain that it is not; and so the exposures go on, without any concerted effort being made to prevent the spread of the disease. This is unfortunate for vaccination. The epidemics of smallpox have been so mild in the last two years that it is a matter of indifference on the part of some people whether they are vaccinated or not. The death rate has only been from one to one and a half per cent. If we had a more virulent form of the disease, with a death rate of 30 or 40 per cent., we would have much less difficulty in getting people to accept vaccination as a protective or prophylactic measure. I am thoroughly convinced that we will get all the protection from vaccination that it is possible for us to get, and the anti-vaccinationists are making such earnest appeals to the people at large to resist vaccination, that it behooves the profession to be more thoroughly organized and to stand together as a unit in regard to enforcing vaccination.

XXVII. OPIATES AND ETHICS.

BARTON W. STONE, M. D.,

LOUISVILLE, KY.

About a year ago, in the city of Nashville, I was called to give an opinion in court as to the legal responsibility of a morphine habitue, a teacher, who had administered a fatal dose of morphine to his wife. He tried also to end his own existence by the same drug. He was on trial for the murder of his wife. The couple had always lived harmoniously; each was above 50 years of age, and very intellectual. Disappointments in business led to the con-

templation of the double tragedy. There was collateral evidence adduced, which proved the man's mental eccentricity, but a directly contributing cause of his dreadful deeds was his habitual use of morphine. He suicided a year subsequently. This is an extreme case, but it is well known that the abuse of opiates leads generally to reckless views of the value of human life and to reckless employment of the drug.

A morphine habitue in the Purchase of Kentucky gave a friend who had delirium tremens an enormous and fatal dose of morphine to induce sleep. He was tried for murder, but the court, convinced of the man's good intentions, and the absence of the semblance of malice, dismissed the case. There is usually little remorse after the commission of crimes of this character. Instances like the above are frequent, besides lesser crimes, of all crimes except adultery, resulting from the debauching influence of opium addiction. The omission of adultery from the category demonstrates the degenerative character of the changes produced upon the physical constitution.

A few doses of opium taken by a person who has never indulged habitually in its use do not perceptibly affect the moral nature. But when repeated doses involve him in the toils of a habit from which he finds it difficult to extricate himself, he realizes, often suddenly, that his integrity of morals and manliness have suffered impairment; and, like Adam and Eve, after having partaken of the forbidden fruit of Eden, he begins systematically to hide his deformity of character. Opium so transforms the moral constitution of the habitual user that, whilst he may be able to clearly distinguish right from wrong, truth from falsehood, he becomes indifferent as to the consequences of making proper choice between them in governing his conduct.

I probably have no right to say that the morphine habit has this corrupting influence upon the morals of every subject. I am sure there must be exceptions to this almost universal rule. Perhaps I should except the aged saint, who, to ease the pains caused by rheumatism or senile degenerative changes, has been inducted into the opium habit by a well-meaning physician. It is, however, suggestively common with even this class to prate ostentatiously of Scripture, religion, and especially of their own spiritual triumphs, and even sanctification. Possibly some clergymen do not become liars, like lawyers and other public speakers, who have become habitual users by employing it to stimulate brain activity for special oratorical efforts. But the fall of many a minister has commenced right here.

When I say that I cannot impeach the veracity and general integrity of all opium habitues, nearly every one with whom I have become acquainted will want to be left out of my indictment. Each will acknowledge that opium engenders mendacity, but claim that in his particular case there has been no occasion for lying, etc. I have never known one to make an absolutely clean breast of his failings. A Kentucky Judge recently threw out the testimony of a witness in an important case when he ascertained he was a morphine habitue.

Dishonesty of speech is naturally akin to dishonesty of action. A good per cent. of morphine habitues will commit theft if a favorable opportunity offers; but wholesome respect for public opinion and fear of the law lessen the number of crimes of this character. Besides, a large proportion of subjects are well-to-do, and the temptation to theft is accordingly less strong. Light regard for property rights is, however, very generally an effect of the habitual use of opium. A further effect is the loss or weakening of the sense of religious obligation. Blatant skepticism is occasionally seen, but more frequently there is a pretense of possessing a higher type of religion than is ordinarily claimed, each evidencing moral alienation. Very early there is a loss or material diminution of reverence for age, civil and parental authority, conjugal love, and genuine friendship. There soon comes indifference as to breadwinning, and indisposition to exertion, in order to provide sustenance for the family, or even self.

The use of opium often destroys the fetus in utero. A lady came to my sanitarium to be rid of the opium habit, solely because she did not want to commit the crime of killing her unborn child. She had just discovered her condition of pregnancy. I have been informed that opium has been often used to procure abortion. The punishment for the crime in the forming of an opium habit seems a just one.

In the common course the opium-user becomes lazy, self-indulgent, absent-minded, conceited, garrulous, sensational, and a mischief-making gossiper. The slavery of the habit grows stronger day by day. The constant mental occupation of the subject is as to the degree of comfort derived from the last dose, and the length of time until the next one is due. By slow stages the habitue settles into comparative imbecility, never losing, however, a marked degree of shrewdness in acquiring and storing opium for the daily need. The moral nature becomes thoroughly depraved; insincerity, duplicity and downright dishonesty enter into every thought, word or action, painfully patent to every one.

With all these ethical effects of morphine, there have been taking place degenerative changes in the physical constitution. The nervous system, alimentary tract, the kidneys and liver, under the poisonous action of opium, gradually lose function. Finally the miserable, suffering, fruitless life gradually goes out.

A common characteristic of probably all narcotics is that the dosage must be gradually increased to bring the desired degree of comfort. I do not believe the oft-repeated story of the habitue, who lived to a happy old age, never having increased his daily portion. If true, it would show that he could have lived just as comfortably without any opium, and so escaped its slavery.

It is common for opium-users to experiment with all other stimulants and narcotics that may be available, and thus in manifold degree lessening their chances of being liberated from the chains of habit. Alcohol, chloral and

cocaine are more frequently combined with opium than any other drug. Cocaine entails the direst consequences upon the mental constitution. The majority of cocainists early develop positive insanity, usually of the paranoiac type, and of every insidious and dangerous character. About four years ago a Nashville cocainist shot to death his father, a distinguished jurist. He had the delusion that his father was conspiring to kill him. Another subject fancied that his mother and others were preparing to kill him. He was detected in making arrangements to burn the residence or to destroy it with dynamite, was put in jail, and afterwards sent to the County Asylum. He tried to burn both the jail and asylum.

The mental effects of cocaine sometime persist for months after the drug has been withdrawn. The will power is always weakened, and this explains the specially strong liability of the cocaine-user to relapse, after having ceased taking the drug. Another cause of relapse is that quitting the habit is attended with very little pain.

Like cocaine, alcohol also weakens the will, this constituting the element which renders its association with the morphine habit so unfavorable, a few drinks of alcohol generally re-exciting an irresistible appetite for opium. The association of two habits quadruples the gravity of the case.

The morphine habitue recurs to his habit more to relieve his pain than to derive pleasure; the cocainist to experience the delights which the drug brings. Under its use the public speaker has his courage and his wits increased. The writer may work for 48 hours without food or sleep. It powerfully stimulates failing physical energy, and makes the pauper as happy as the king. Some day, however, there must come a reckoning and compensation for all this overstimulation. Mental, nervous and general physical impairment are sure to follow the abuse of cocaine or any other drug which has like effects. Many proprietary so-called nerve tonics contain cocaine or kindred drugs. Are we safe in prescribing such remedies as wine of coca, vin mariana, coca-cola, bromida, and numerous other lauded articles? Cocaine, morphine or other narcotics are, I am informed, incorporated with various proprietary medicines and even soda-font beverages and cigarettes, to stimulate repurchasing. Thus are the dangers increased which beset the uninitiated as well as the reformed habitue.

The picture presented of the dreadful effects of opium should stir the physician especially to try to stop the terrible abuse. I would reproach myself if I had inoculated any person with cancer or tuberculosis. I would be equally as culpable if I should unnecessarily fasten upon him the habit of using morphine, and, considering its moral, as well as physical entailments, I would be more culpable.

It may be safe for the physician to prescribe the drug in combination with other medicines for protracted periods, or morphine alone for a few days, but I believe the patient should be kept in ignorance of the fact that he is taking

the drug. It should be used, however, as seldom as possible, and the profession should warn the laity of the dangers in using it or any other hypnotic or stimulant.

I regard it as impossible to prevent the purchasing of opium. But druggists may do much toward lessening its consumption by kindly warning and advice, and by refusing to refill prescriptions containing narcotics without orders from the physician. It would be a refinement of cruelty if a patient sought for relief of physician and druggist, and, all unawares, should have a morphine habit foisted upon him, or having "asked a fish, they should give him a serpent."

A morphine habit well established is usually a hopeless condition, unless the aid of powerful restraining measures is invoked, such as cannot be attained at the subject's own home. The Massachusetts State Board of Health ascertained by analysis that nearly all the so-called "opium cures" contained opium or its alkaloids, and are not better, but often worse in their effects than the pure opium uncombined.

Under proper management many subjects are weaned from the habit, but the tendency to recur to it is very strong. In such cases strychnine exercises a useful bolstering influence upon the weakened will. But the evil is best met before the habit is formed. The law-makers should be enlisted against it. Whilst the enactment of laws against the indiscriminate sale of morphine can never suppress it, it might mitigate, and at least emphasize a wholesome public warning against the formation of the morphine habit.

The Chinese began using opium in the seventeenth century. Their present recognized national degeneracy is generally attributed to its wide-spread abuse by all classes. More opium is used by them than by any people in the world. The imperial government has repeatedly attempted to enforce an embargo against its importation into China. The attempts have all been unsuccessful, mainly through the opposition of the European commercial nations. Treachery, cowardice and homicide are very common traits in these people. Fortunately the Chinese adopt the least injurious form of using opium, viz—smoking. I have had less trouble in removing this habit than any other form of opium taking. The cooking process of the extract of opium, in preparing it for the pipe, doubtless removes from the drug part of its poisonous quality.

Notwithstanding all the warnings against opium using, the drug is as often prescribed now, and as freely used as it ever was. In spite of the demonstration of the evil effects upon the users and the usual neurotic heritage entailed upon their progeny, new victims present themselves every day. In spite of their experience of suffering and slavery the old habitues will very often seduce their best friends, even members of their own families, into the habit, and the reformed habitues will in considerable numbers return to their habits, like the dog to his vomit, or the sow that was washed to her wallowing in the mire.

XXVIII. ON THE PRESERVATION OF PATHOLOGICAL SPECIMENS.

JAMES B. BULLITT, M. D.,

LOUISVILLE, KY.

There is perhaps no department of medical science which is more fruitful in its results to the student of medicine than the study of pathological anatomy, unless, indeed, it be that of normal anatomy and histology, which must always serve as the basis of understanding of all pathological processes. Samuel D. Gross, the pioneer in the study of pathological anatomy in America, and the first to write a treatise on the subject in the English language, laid particular stress on its importance, and marveled that it had been much neglected. Since Gross' time the work has gone rapidly forward; book after book has appeared, each more excellent than its predecessor, so that to-day scarcely any pathological condition can be encountered of which an accurate description cannot be found elaborately set forth in many works on pathological anatomy. The great difficulty that now presents itself is in the appropriating of all this work to one's own uses and applying these descriptions to the case and matter in hand. This can only be done by familiarity with the *things* themselves, just as botany can be learned only by studying the plants, and not by cramming the books. I remember a fellow-student who could rattle off without hesitation or mistake all the muscles of the forearm, but who could scarcely tell one muscle from another on the cadaver. It is needless to say that this kind of knowledge is not the sort which the physician can utilize in the daily practice of medicine and surgery. For the study and appreciation of pathological material most of us need a stimulus, and, to my mind, no stimulus is so pronounced and lasting as the careful preparation of such material for permanent preservation.

It has recently fallen to my lot to make a canvass of the State for the purpose of obtaining pathological specimens to be exhibited at the coming meeting of the American Medical Association at Atlantic City in June of this year. In this way I have found out that the preparation and preservation of pathological material has been generally neglected in Kentucky. Specimens usually fare in this way: After being glanced at more or less cursorily they are placed in any sort of bottle that can be found lying around, the preserving fluid usually being alcohol or formalin. In a little while the specimen is cured; that is, it is shrunken and bleached, and is then consigned to a dark corner. After some time the cork gets somewhat loose and the fluid evaporates and the specimen begins to spoil. The good housewife complains, and proposes to throw the horrid thing out; and, as the specimen is no longer a thing

of beauty and a joy, no special objection is made, and the specimen is consigned to the privy vault.

In order to make things valuable it is necessary to make them represent money; and in order to accomplish this with pathological specimens it is necessary to invest a sufficient amount of time in their preservation and annotation in the first place, and to preserve them in uniform, attractive, and therefore somewhat expensive, glass jars. An investment of this kind renders the pathological specimen quite another matter. One finds a species of paternalism growing gradually on him, the specimens are taken down now and then, are fondled and caressed, as the miser does his gold. Like other varieties of knowledge, the value of such preparations is difficult of computation. But when it is reflected that almost every surgeon of large practice will encounter during the active work of his life almost every variety of pathological lesion of a surgical nature, it must be conceded that failure to preserve illustrative specimens is akin to throwing away surgical gold.

By employing the Kaiserling method the natural color of specimens can be preserved almost exactly, and apparently for an indefinite period of time. Specimens prepared in this way are so much handsomer than those prepared by means of any of the bleaching fluids, that a new zest and vigor are given to their preservation. This method follows:

Kaiserling Method for the Preservation of Pathological Specimens.

The specimens are placed as soon as possible in solution No. 1, where they remain for three to five days. Any excess of blood, etc., is simply wiped off. The specimen must *not* be carefully washed out in running water, as this removes the blood on which the color depends. From No. 1 the specimens are transferred to No. 2, where they remain for three to five *hours;* then to No. 3 for one to two hours, and finally are permanently preserved in solution No. 4.

It is necessary to keep specimens in a dark place, as light produces bleaching in the course of time:

Solutions.

No. 1—Formalin, 640 cc.; water, 3,200 cc.; nitrate potash, 48 cc.; acetate, 96 cc.

No. 2—Alcohol, 80 parts; water, 20 parts.

No. 3—Alcohol, 95 per cent.

No. 4—Acetate potash, 300 cc.; glycerine, 600 cc.; water, distilled, 3,000 cc.

Let this stand for 48 hours and then filter.

The specimen loses its color after remaining in solution No. 1 for a few days, but this color returns after the specimen is transferred to the 80 per cent alcohol.

XXIX. SOME ADVANCES IN MINOR SURGERY.

A. J. SLATON, M. D.,

LEITCHFIELD, KY.

I want to call your attention to three different operations in minor surgery and give my experience with them as compared with standard authors on the subject. The first subject I wish to bring before you is the operation for malignant disease of the testicle. All the books which I have examined on the subject, and I have examined several, advise cutting the cord high up. I think this is good advice, if we could do no better; but I think we can do better. I am well aware that malignant growths disseminate themselves through the lymphatic system, and that the contiguous glands are usually the first to become affected; but while dissemination takes place by contiguity, it may and does take place by continuity as well, so far as my reading goes. All authors advise cutting the cord as high as possible. My advice is not to cut the cord at all, but after the testicle is thoroughly enucleated, make traction on the cord, and it will usually give way near the vas deferens, the blood vessels will be lacerated, and you will have no bleeding at all. I operated on two cases this way, and had no hemorrhage whatever. By not using the ligature on the cord we are much less likely to have septic infection.

The first case was sarcoma of the left testicle of at least twelve months duration; softening had already begun in the organ; the disease made its appearance in the cervical glands two years later and proved fatal.

The second case: Testis considerably enlarged, but no softening; disease not so far advanced. I operated without ligature; no hemorrhage. Operation was done several years ago, and patient is still living.

The second operation I want to call your attention to is that for imperforate anus in the new-born.

I was called to Alex D., a well developed male infant, three days old; found nates normal, but no sign of anus; skin thick and firm. There was a fistulous tract parallel with the urethra, entering a cul-de-sac posterior to the bladder, out of which meconium and gas were escaping. I introduced trocar and canula, carrying point as far back toward the sacrum as possible to avoid the bladder. At the depth of two inches the bowel was punctured. By making proper incisions before and behind this instrument the child was relieved, and is now a healthy boy 8 years old.

The point I want to call your attention to especially is that Kelsey, Bryant, Ashhurst and others I have examined on the subject advise drawing the bowel down and stitching it to the skin. Such a procedure, I think, is seldom successful, and I think unnecessary. If the gut is close to the skin it does not need to be stitched, and if high up will not hold; so I advise omitting the stitching. Nature will form a mucous membrane over the raw surfaces, and

by keeping the parts well dilated for a while the child will, in the majority of cases, be able to control the feces. I would not make an artificial anus in an infant's side at all. I would not force an individual into such a miserable existence as that. Life under such circumstances would not be worth living. I would let the child go on to heaven while it is prepared, and would not force it into the responsibilities of life without the capacity to meet them.

The third and last operation I would call your attention to is that of lacerated perineum in the female. The theory that is promulgated by most of our leading authors, that if we expect to get good results we must close the wound at once, is, I think, erroneous. Bryant, of London, says in slight lacerations not affecting the perineal body stitches are not needed. I think this is correct, and if they are needed, my opinion is that union seldom takes place, on account of blood clots. Ashhurst says if twelve hours have elapsed the edges must be revivified. This is very far from correct, as I will explain further on. Mr. Bryant further says that if we do not operate at once it is best to leave the operation alone till after the suckling period. This is certainly very far from correct. That distinguished author certainly does not mean to say that where the rent extends through the sphineter ani and recto-vaginal septum that he would have the patient subjected to the incontinence of feces during the whole suckling period. Yet we are forced to infer that from his language.

I was called to see Mrs. McD., fourth day after delivery; found laceration extending through perineal body, and an inch up the bowel. She could not control feces. The wound was covered with well developed granulations and covered with healthy pus. I applied hydrogen dioxide, full strength, to the surface, and placed the deep stitches, making them enter and emerge about three-fourths of an inch from the raw surface; superficial sutures were introduced in the vagina, very close together, to exclude local discharge. The dioxide was kept doing its work all the time the stitches were being tied. By this method I brought together a surface that was free from blood clots. Capillaries were ramifying very freely in the granulations, and union took place very rapidly. I removed stitches on the fifth day, and union was complete throughout.

My objections to operating immediately after the accident are: The patient is exhausted, and suffering more or less from loss of blood and shock, and is in no condition to be disturbed; in the second place, union by first intention is very delicate, and cannot overcome muscular retraction before the ligatures let go to some extent, and ligatures are only useful so long as they keep the parts thoroughly coapted, and this is not more than thirty-six to forty-eight hours; and thirdly, if you operate immediately you will have some blood clots form as you close the wound, which, if left, will prevent union, and are liable to produce septic infection. The urine and lochial discharges will do no harm if superficial sutures are put in the vaginal rent properly. I tie the knees together, and use no catheter if the patient can pass water without it.

XXX. LOCAL PARALYSIS, DUE TO AN OVERDOSE OF CAMPHOR.

T. B. GREENLEY, M. D.,

MEADOW LAWN, KY.

A lady, age 78, on the night of December 25, 1899, took a large dose of spirits of camphor, but does not know exactly how much, as she drank it from the bottle. It was about 2 o'clock in the morning when she drank it, and for some time, supposed to be an hour or more, after she returned to bed, was very restless, and became unconscious, when she attempted to get out of bed and fell on the floor in an entirely helpless condition. In fact, at first, when picked up, it was thought she was dead, being so limp and helpless. Soon after getting her back in bed she revived, but it was some time before she regained consciousness.

It was found on examination that her right hand and right side of her face were paralyzed. Of course, the paralysis was peripheral, or local, and not central, as she had use of all other muscles. The question naturally arises, What was the cause of the paralysis, what nerves involved, and in what way did it originate? In the first place, we charged it to the powerful stimulating effects of the large dose of camphor. The patient has not been troubled with any disease for many years, except slight pains or stiffness about the knees from chronic rheumatism.

The spirits of camphor was prepared for her to be used as a local application to her knees on account of occasional stiffness or pain, and made very strong. It was kept on the mantle, over the stove, so as to keep it in as strong solution as possible. She had an idea that if it was a good remedy to use externally, it might help her to take it internally, especially as she regarded it as simple, and not dangerous.

It is well known that camphor is a powerful stimulant in large doses, and even may act as a poison and destroy life. It is the writer's opinion that the nervous system, for the time being, succumbed to its powerful stimulating effects, producing unconsciousness, or coma, and during this state, the function, as to motion of the muscles of the face and hand of the right side, was destroyed. There could not have been a thrombus, or embolism, of the cerebral vessels, or the attack of coma would have lasted longer and the paralysis been more extensive. But in these cases it is almost impossible to correctly diagnose the true pathology connected with the disease.

There is quite a variety of the trouble termed paralysis. We may have hemiplegia, which, of course, is due to disease of the brain; paraplegia, in-

volving the spinal cord; paralysis agitans, or shaking palsy, which, as a rule, is due to general giving way of the nervous system, and mostly confined to elderly people. This is also called Parkinson's disease. I have known, however, several instances wherein the parties lived several years after being thus affected, but as a rule it is regarded as a precursor of early death. We may also have uni-facial palsy of a permanent character, which may be local or peripheral. We may have paralysis of either an inferior or superior extremity, entire or partial. These cases are generally regarded as being local, or peripheral. When we have a case of coma resulting from apoplectic seizure, we have but little expectation or hope of relief.

In regard to the case herein considered, I cannot but believe, as before remarked, it was due to the powerful stimulating effects of the one dose of camphor. The right side of face and right hand were the only parts we could discover as being involved by loss of action after consciousness was restored, but in what way the stimulating effects of the camphor produced the trouble we are unable to say. The patient was kept in bed two weeks, at the end of which time she was allowed to sit up several hours at a time. Her appetite kept good all the time.

We put her on the normal liquid of nux vomica, and used gentle massage to the affected parts. In four weeks we allowed her to walk about the room, at first by assistance, and soon alone. She now walks about the house and goes to her meals in the dining room. She can also walk about the yard, and can feed and dress herself. She can pick up a pin off the floor with her affected hand, and there is no difference in the appearance of the sides of her face when she talks or laughs. I have used the normal liquid of nux vomica as a nerve and muscular tonic for many years, and prefer it to any I have used.

According to works on therapeutics, camphor in large doses may produce vomiting, vertigo, slowing of the pulse, fainting, headache, delirium, convulsions, epileptiform spells, coma, etc. I have found but one case mentioned where an over dose destroyed life. That instance is related in the United States Dispensatory, being a child a few years old.

XXXI. FOREIGN SUBSTANCES IN THE WINDPIPE, THREATENING TRACHEOTOMY.

F. J. YAGER, M. D.,

LOUISVILLE, KY.

In the fifty-two years of my general practice of medicine I had a number of cases caused by inhaling foreign substances into the trachea. Prominent among these were three children, which I will report as briefly as I can. The first of these was a little girl some nine or ten years old. She was in the habit of driving up the cows from a nearby pasture, morning and evening, and while hurrying through the pasture, merrily driving along, she plucked a green cockle bur from its native bush and put it into her mouth. As she hastened on her mission, and in her rapid, quick breathing, she inhaled the bur, which passed through the rima glottidis into the trachea, which, of course, at once affected her breathing by producing increased rapidity. I do not think I can state to you now how many days elapsed before the girl showed she could not live under such a state of pressure without an operation, relief of some kind, or death. The surgeon was sent for late in the evening, nearly night, and, notwithstanding the child exhibited great suffering and was in a precarious condition, with the doctors, who had visited the child in consultation, and the friends and relatives all present, but the surgeon took his own course, and did not appeal to any of the doctors present.

This was in and about the year 1845, I think. The surgeon placed the little patient upon her back, proposing to give her as much sleep as possible and await the coming morning. Of course, everybody there thought it was a great and hazardous risk. The surgeon had the case in his own hands and awaited the coming morning. The child got some broken sleep. After clearing off the breakfast table and all things made ready, the child was laid upon the table for an operation of tracheotomy. The child did not submit calmly by any means, but made some desperate struggles, and in these struggles, up came the bur, completely glazed over with a thick coat of mucus. I have no comment to make on this, except that time is a good exposition, and also thoroughly proves what the child had stated some days before, and she was soon well, running around, and perfectly happy. I suppose, if we commented at all on this lesson, it would be to never give it up. The surgeon did not expect any such result.

CASE 2. Before I begin I will state that we in those early times were not so familiar with tracheotomy, nor any of your other "otomies." This was a case of inhaling a large grain of popcorn. After receiving the information I strived

to keep excitement down. The father was in a great deal of trouble about his boy; he was the only boy in the family, as well as I can recollect. He was entirely submissive to his doctor's advice. After giving me the information, of course I knew just what was the matter, without appealing to medical science to find out. Though I examined the chest, I found both of the lungs resonant, but discovered the wind pipe obstruction. I took the course I had taken before, throwing or turning his head down and his heels up, hoping it would pass back, and by the force of inflated lungs would be forced through the rima glottidis. We treated him rather roughly, and made him cough and cough almost to suffocation, letting his father know the probable result would be tracheotomy. I told the father to take him home, and I would come down and see him the next day. He lived about four miles from my office. I went the next morning to see the boy, and expected to hear that he rested badly from the swelling of the grain of corn, but to my surprise the equilibrium between the heart and the lungs had not been interfered with. Thinking of the bur in the little girl, I thought I would not be in a hurry with my operation, and told the father to let the little fellow skip and run and play, and told his little sisters to plague and fret him and make him run. They had a chicken to catch, perhaps, an old setting hen, a dime being the premium to the one that caught the hen. The mother and the sisters understood it, and in the effort that was made the little boy got the dime and got rid of the grain of corn. Though it was only what we style a pop grain of the larger size, the disposing of it in that way brought joy to the house of that family. The little sisters understood it, and helped to administer the dose and the treatment that brought relief. The father came up fully elated and made the report, and brought me the grain of corn as my trophy.

Case 3. Nearly fifty years past proved to me to be the tug of war and an epoch of battle. I was sent for in the evening, some twenty-four hours after the hard breathing set in. (It might have been only one day or more; my notes do not fully say.) The boy, I think, was seven or eight years old. I found him in a state of labored breathing, and found the equilibrium in the heart and lungs very much interfered with. The pulse was rather rapid, making the discount for the age of the boy. We had no thermometers fifty years back. I think it was fifteen years after this before I had the opportunity of using a thermometer or hypodermic syringe, so I can say nothing about that part of my practice; but, as well as I as can recollect, I think the boy was sweating. The whole chest, as well as I can now recollect, was resonant. I could get no clew to the cause that would satisfy me. The father said and cried out pneumonia. We had close by a botanic doctor, and he said croup, and some of the old women would pronounce it bronchitis and worms; so we had a babel of decisions. But I was the fortunate, or unfortunate doctor, just as you please. I think I have heard it said that it was an easy matter to learn all the sounds, whistles, or hissings, or modulations of sounds given by the

mocking-bird; their mimickings and imitations of birds delude you—you think they were that kind of a bird. Now, there is no mocking-bird in the chest, as we all know, but there are a great many different whistles and hissings, murmurings and cooings, as you know. We learn all the sounds of the thorax, which occur in full vigor of health. Now, then, a departure from this standard brings in at the start its own particular variations, which we must learn to mark and read by the sounds and voice it imparts to us.

To show the necessity of these signs, I have a case right here, buried from me and hid from me by all outside knowledge, and unless I could call in these physical signs to my use and benefit I could not possibly define its nature or character. There is one infallible law that gives us light and defines our way, and this is physical and medical science, and this science is not put forth by the mocking-bird, but by the whole functional human system. They will tell you the truth in pathology, and they will also tell you the truth in the workings of the healthy, natural functions of the human system. The mocking-bird will deceive you by making you believe that while you are listening at him, you are listening at another bird. Not so with the sounds of the human functions, either in pathology or in a sound, healthy human body. In the case of this boy his disease must be understood by physical signs, brought out by auscultation and percussion. The whole chest was resonant, and on the left side the whole lung exhibited a natural murmur and vesicular breathing, and the right side was partially still. Of course, it would naturally suggest to my mind that something was in the right tube, not in the wind pipe, but my surroundings rather intimidated me from declaring it. It was a new country, and thickly settled; the family was large, and the father of the boy was one of the most cranky old bucks to contend with to be found. He was not my enemy until this trouble came up. I examined all I could by auscultation and percussion. I went home to my office and read up on the sounds, which enabled me to decide against the noisy rabble. After I labored through the night, refreshing my memory in respiratory sounds and vesicular breathing, the natural murmur, bronchial, pneumonia rattle and crepitations, I went from my books with a determination to be positive and decided. When I applied my ear to the trachea tube I could not hear that interrupted tubuler sound that we would hear from the air passing through a tube. The chest was resonant everywhere; the right side weak in natural sound. I turned the boy upside down, heels up and head down, and he came near suffocating. In this mode of action I missed the good result hoped for. I concluded that the suffocation came from the falling of the object down upon the rima glottidis; in fact, after my night's toil and labor, I became thoroughly convinced on the subject, and could not go on any other line. By the influence of anatomy and physiology I became fixed, which at this critical time saved my respect as a doctor and citizen.

And now, right here let me say to the young gentlemen of the profession, our grand and noble profession has the respect of the whole world, and if you

practice medicine according to its calling you will have the respect of almost any community at your bidding. I will try to finish up my mixed paper. I declared then and there that there was a foreign substance in the wind pipe; my diagnosis almost made up alone from physical signs. The old crank, with all his family and kinfolks—and he had a lot of them—and also the botanic doctor, helped to push the car of opposition. But when I found I had physical and medical science on my side of the question, I felt I then could meet a battalion. I kept them quiet by telling them if it was pneumonia I could cure it; if it was croup I could cure it, or bronchitis and worms, I could cure it, if any one could; and so I went on with all the other things they called it, and treated that case three weeks, minus four days. But in the midst of great contention as to what was the matter with the boy, I will tell you the result, and I believe you will declare for the science of medicine, even way back yonder in the dark days.

The boy died on Saturday, if I recollect right, before 12 o'clock. I cried aloud to the family and neighborhood for a post-mortem examination. You ought to have witnessed how eager the botanic doctor was for the post-mortem, for he thought with all his soul that he would catch this great pretender, and so did all the balance. I tell you, gentlemen, superstition and ignorance, linked together, are awful strong and very hard to conquer, and he and the whole neighborhood believed that I was mistaken. I set the time at 2 P. M. on Sunday, and when I got there at that hour I found the house full and yard full; and do you know that I felt a little like these fellows have been feeling about Frankfort? But I had no guilt in the matter, and grew strong, just like doctors generally do with their honest cases. All of you know that the people over the new country were not quite so much civilized fifty years back as they are now, and I shall not pretend to tell you how much of the good old stimulant they had in them on that occasion. I had not been out of college over about three years. I had my dissecting instruments with me all O. K., and here was my special good friend botany at my side, ready to see me taken good care of, and stood by me, for I was certain to be caught, and maybe carried to Frankfort; and do you know that I was a little uneasy in the midst of my proof?

We opened the chest, turned the sternum down; then opened the trachea and traced it down through a great collection of infiltration; but, prosecuting our journey, we found imbedded at the right bifurcation of the bronchial tubes a large grain of corn. I took it on the points of the forceps and held it up. My good friend got sick, and his language is a little rougher than I am in the habit of repeating; but you will pardon me when I tell you he wanted to know "how in the hell I knew that was there." They called for me outside to come to the door. I held it up for them all to see it. But you must not forget that I had a little glory, too. Young men, study your text-books; lay your medical

foundation broad and wide; stand by your profession; sleep by it, and eat by it, and practice to do good, as well as for compensation.

By way of a codicil I wish to say that by my having the time and early opportunity to study this case I was enabled to detect a foreign substance, without a knowledge of the kind of substance, or how it happened to reach that place. Now, without this early opportunity to diagnose such a case, it would have been impossible for me to discover the real cause of the trouble by or from the accumulations of the fluids. These appeared and made their presence known in all the breathing pipes and vesicles, and, of course, I should have been unable to decide with all the discrimination that I could make by the difference of the symptoms and physical signs, which would have certainly been much confused by the increased fluids of the chest.

One more little statement I want to make. All the doctors of every order, denomination or name know full well that fifty years back the country was not only full of quacks, but the most ignorant quacks; and we all know it is very apparent now, so I wish to be understood I do not intend any discourtesy to doctors of the present day.

PAPERS READ BY TITLE.

XXXII. INFLUENCE OF MATERNAL IMPRESSIONS ON THE OFFSPRING.

D. G. SIMMONS, M. D.,

ADAIRVILLE, KY.

For years and years I have had a yearning to write or say something in support of the time-honored belief in the influence of maternal impressions on the offspring. The reason why I have deferred doing it so long is that many cases are so—well, so curious—that I feared bringing myself into ridicule. But at all risks and hazards I propose to put myself on record before this Society as an apostle of maternal impressions, and hope thereby to elicit some discussion and exchange of opinion on the subject by these honorable members.

The question of the effect of maternal emotions on the growing embryo and fetus has claimed the attention of some of the most profound psychologists of all ages, and, like questions in religion and politics, it has always had its advocates and its opponents. During my professional career I have had some rather startling—perhaps I may say unique—observations along this line, and as actual incidents and observations are more interesting, as well as more convincing, than mere argument, I will, without further preface, relate some of the most striking of them.

CASE 1. Mrs. B. H. was 42 years of age and the mother of four living children. She was about six months advanced in utero-gestation, when a bachelor brother, of an epileptic habit, who lived with her, and whom she loved very dearly, had an epileptic seizure and fell partly in the fire while alone. When discovered one of his hands was burned off, one side of his face and body was burned to a crisp, and his clothing burned nearly off him. It was she who first discovered him and rescued him from further injury. The poor victim lingered only a few days. Of course, the woman was dreadfully affected by the shock, and almost crazed with grief and sympathy.

I was very anxious about her welfare, and still more so as to the effect on the offspring. The violence of her grief on account of the tragic death of her brother was soon diverted by her anxiety about her unborn child. She felt confident that the shock she had sustained would maim or deform the child; that it would be a victim of abnormalities and deformities. She would have it that one hand would be absent, and the skin on one side would be off. Although I very much feared all this myself, I endeavored to console her by such sophistry as I could command, assuring her that as the child was already fully

formed there could be no absence of hand or skin, but all to no purpose. By the time the term of pregnancy was complete she was worn to a mere shadow. So certain did I feel that the child would require surgical attention, that, when called to attend her in labor, I provided myself with all proper dressings for a raw surface and a maimed hand.

With the exception of the mother's agitation and anxiety the labor was without incident, and in due time a ten-pound boy was born—sound in wind, limb and pizzle, and without spot, blemish or imperfection. I was dumfounded; somehow I could not seem to understand it at all. Here were grouped all the conditions for a monstrosity that one could want, even if he had the ordering of them, but the deviation from normal development signally failed to materialize.

Of course, the mother was greatly relieved. As for myself, I can scarcely describe my feelings; but I fear I was disappointed. Indeed, I will be candid enough to confess that I was rather bitterly disappointed. I felt a sense of personal injury received from the mother, for I had an ardent desire to figure in some of the medical journals (I was quite young then) in connection with so curious a case as that promised to be. In fact, to make a clean breast of it while I am at it, I will go further and say that I had already written up the case, leaving some gaps open to fill in after the event had transpired, and it was with humiliation and some exasperation that I had to commit that rather turgid article to the flames. Another case of "love's labor lost."

Every one in the neighborhood knew, when I was called to this case, that I had equipped myself for all sorts of plastic operations, and expectation was on tip-toe. Knowing all this, I felt afterwards a lurking suspicion that, although they said nothing to me on the subject, the verdict among them would be that I had made an ass of myself. But in the process of time the remembrance of the circumstance passed off, and most persons forgot it; all did so, in fact, except those who were kept frequently reminded of it by ill-natured medical colleagues.

Case 2. Some years later I was furnished with my second case. This lady was ordinarily healthy, but she had the greatest aversion to snakes I ever knew any one to manifest. The very mention of snakes gave her a creepy feeling, which lasted till slept off. When she had been pregnant five months she stepped on an insignificant little snake, which wrapped itself about her foot, and although there was no danger in it whatever, snakes were snakes with her. and all dreadful alike. She had a series of fainting spells and was dreadfully cut up. She imagined that the movements of the child changed their character. To her imagination they assumed a sort of wiggle, which depressed her spirits greatly. She was expecting all sorts of deformities. She suspected that the feet and legs, as well as the hands and arms of her child, would be merely rudimentary; that it would have a forked tongue and perhaps crawl on its belly. In this case, as in the other, I tried to make it appear to her that as the child was already fully formed as to its members, its legs could not

be absent nor its tongue forked; but as the medical journals were teeming with instances about as strange as this, in which all sorts of deformities arose from maternal impressions experienced just a few weeks or months prior to labor at full term, I could not more than half admit to myself what I was preaching to her.

So distressed and disturbed was she after this snake incident that labor was precipitated at the seventh month of pregnancy, and I was summoned to attend her. Although I took along with me instruments proper to do a perineorrhaphy on a bifurated tongue, as well as other instruments of a promiscuous nature, to do any of the queer things that the case might demand, I took care this time to say nothing to any one about it. That meddlesome busybody of a colleague had taught me something. If I was determined to go home again empty of honors as I did before, I at least determined not to write myself down an ass for my colleague's gratification. It was with feelings of expectation mixed with doubt that I conducted this case of labor to a termination, because I remembered my former disappointment. The result, however, was the same old story—the child born perfect in every particular.

These were two curious coincidences. They illustrate the converse of the axiom, that it is the unexpected that happens. But they in no wise shook my faith in the power of maternal impressions. What are two cases compared with thousands that have been published? No, they merely strengthened the rule by furnishing the usual number of exceptions.

Old man Jacob, who seems to have been the originator or prime discoverer of maternal impressions—the father of them, as it were—was a stiff-necked, uncircumcised, but at the same time a long-headed old sinner; and just how he found them out in that age of ignorance and superstition is entirely past all understanding. All the same, he should not have done it. In that scurvy goat-trick he worked on Lubin or Xenophen, or whoever his father-in-law was, he entailed an amount of unhappiness on laboring females and expectant doctors, for which he has doubtless already been called to a very serious account, and served him right.

But "all things come to him who waits." I had been waiting and watching through a great many hundred cases of labor, constantly expecting something to correspond with the cases I had so frequently seen in the medical journals, till finally my patience—or my impatience, if you will—was rewarded. Previous cases had been barren of expected results, but I now had a case that was not a disappointment. This was certainly a remarkable case, and if I had not seen it myself I would not have believed it. If I had ever had any doubts as to the influence of maternal impressions, this case alone would have been sufficient to dispel all of them.

CASE 3. The subject was a lop-sided, scraggy old maid of about 32 rather severe winters. She seemed not to have had any spring time or summers worth mentioning. She informed me she had never been married but once, and then she "was over-persuaded and mighty nigh fo'ced;" but that was sufficient to

bear fruit, and when about seven months advanced in pregnancy she consulted me about her condition. I gave her some general directions, and advised her to submit to the inevitable with the best grace she could command. Shortly after this a violent hurricane swept through that part of the State, dealing death and destruction all along its path. The patient escaped death as by a miracle, but the dreadful excitement precipitated premature labor, and I was hastily called to attend her. I found her in the throes of great anguish, and her friends hovering over her and rendering such sympathetic aid and comfort as they might. By much presence of mind, and I think I may say some skill on my part, I very soon delivered her of—four imperial gallons of gas, which passed off with a great noise, very much resembling that of the tornado which had precipitated the labor. She asked me, as my patients always do at the conclusion of the second stage of labor, if the child was all right. I hastened to assure her that the maternal impressions caused by the tornado had transformed the child into gas, or something of that sort, and that I was very sorry, indeed. She seemed overcome with chagrin that she had been so hasty in revealing the fact of her "marriage."

Just what sex the child might have been but for these unfortunate maternal impressions must, of course, be left to conjecture. It may have been a great politician, or a mighty magnetic healer may have been nipped in the bud by this wind distemper. With this solitary exception none of my women have ever materialized anything attributable to maternal impressions.

I do not just know what is the matter with our Kentucky women, anyway. Women of all other States are frequently having impressions and distinguishing themselves by various and divers teratologic developments, while our women are as constantly having the impressions, but, hang it, they do not develop into anything tangible—hardly ever. Just where the fault lies, whether with me or with the women, I have thus far had no means of determining; I only know that thus far I have been rather put upon by my best friends—the women.

But, however that may be, I believe in maternal impressions. The very universality of the belief, especially among the women, should be sufficient to establish their claims, even if there were no other argument, because women have a short way of getting at things—a sort of intuition—and there is no going behind a woman's intuition. No, nothing can ever shake my faith in maternal impressions, notwithstanding some cross-grained skeptics are constantly asserting that if there were any influence exerted by them there could never be born a perfect child, seeing that during the nine months of pregnancy, while the nervous system is wrought up to the highest pitch of impressibility to any disturbing agency, there are necessarily a great many causes for fright and high emotional excitement, and all that sort of rot. You always have a lot of croakers on all sorts of subjects. Just let them croak—it's all right. It will not change my sentiments in the least. I think it will not change the opinion of any reasonable, sensible, right-minded person.

XXXIII. RELATION OF VISUAL DEFECTS TO OCCUPATION.

WILLIAM B. MEANY, M. D.,

LOUISVILLE, KY.

Between what is called normal or natural vision and defects which are absolutely and manifestly disqualifying, there are many intermediate degrees depending upon "short sight" and other malformation of the eye which meet us at every turn. These intermediate degrees have been stumbling blocks to a number of young men and women, otherwise of promise, who have engaged in a long-continued study for a special object, and who at the last moment have been rejected on account of some defect of vision, which might as well have been discovered and recognized as a disqualification years before.

When defect of vision is occasioned by disease, actual or past, it is only to a limited extent remediable by glasses; but in a majority of instances it is due to the faulty shape of the eye-ball, in the direction either of so-called far-sight or that of "short-sight." These conditions are capable of being corrected by glasses, and in a general way the greater the defect of vision the more powerful will be the lens required to correct it.

We are aware of instances where medical schools graduate students whose defects of vision are such as to disqualify them from engaging in the practice of medicine, their visual defects receiving no attention even in schools where ophthalmology is taught, the Professor of Ophthalmology certifying to their fit qualifications to practice medicine and surgery by signing their diplomas. Instances of this sort are too numerous to be the exception, where students return to their homes away from the services of an oculist, only to learn of their deficiencies in this respect. No doubt this double neglect of the teacher of ophthalmology, as well as the student, is sometimes the cause of the wrong medicine, perhaps a poisonous dose, administered.

How can a specific ulcer be distinguished, the febrile exanthematas recognized, or bleeding vessels be readily caught up with the forceps and ligatured, or arteries and nerve trunks avoided when the knife is used, if the physician is suffering from defective vision? In this connection it may be incidentally stated that it has been the practice of authorities, with whom rested the acceptance or rejection of candidates for appointments to a service, to consider the defects of sight, unless existing in the extreme, as only relative disqualifications; that is to say, to treat them as counting for so much in a general examination. On this principle a given degree of defect of sight which would have insured the rejection of an otherwise not well qualified candidate has been allowed to pass in one who was satisfactory in all other respects; and the evil of this plan has been that neither the candidate nor his parents nor his medical advisor could do more than hazard a conjecture with regard to his

ultimate chance of being accepted. Further, it not infrequently happens that persons who have been accepted for duties in a special work find themselves incapacitated for the work, whether owing to their defect of vision or to a progressive form of eye trouble, and compelled to seek employment elsewhere, and perhaps for work which they are mentally and physically unfit.

What we need to have is a recognized standard and method of examination that will insure uniformity in testing visual acuteness, giving the minimum visual requirements a candidate must possess to render him eligible for entrance into a specified service. It is absolutely necessary to avoid taking men into a special service who, by an effort of accommodation, are able, when young and in robust health, to overcome a certain amount of hyperopia, but who, as the muscular power to keep up this effort diminishes as age advances, find their vision, without the aid of glasses, reduced below the required standard. A person who has, say, two diopters of hyperopia, which he may with little effort overcome when young and in good health, would likely give him trouble after an attack of illness, and most certainly when the inevitable presbyopic conditions become manifest. Frequent examination of the eyes should be made and the vision carefully tested from time to time, especially of those persons whose occupations require absolutely normal or natural vision to safeguard the lives of themselves and other people. In examining persons for entrance into the railway and trolley companies' service there appears to be little or no uniformity in making these tests, each examiner making his tests in his own way, often, no doubt, to "harmonize" with the wishes of his employers; and frequently the lack of a single standard, giving the minimum requirements for various departments of the service, are often at variance with each other as regards uniformity of results.

We are pleased to record that a definite standard or regulations regarding defects of vision which disqualify candidates for appointments or a continuance in various departments of the government, the municipal, fire, police and ambulance service, as well for railway, trolley companies and other private corporations, are being formulated, which it appears, if carried out, will hold a fair balance between the requirements for such service and the necessities or weakness of those who desire to enter it. They recognize, in the first place, that the requirements in question are different in various occupations, and that all persons who are likely to be entrusted with the lives of the people, such as engineers, firemen, motormen, draw-tenders and pilots, must possess normal acuteness of vision, color perception and hearing; and a standard of 20-20, without glasses, in each eye tested separately, must obtain to render applicants for such positions eligible.

The use of glasses in the foregoing occupations would be a hindrance, rather than a help, for any untoward amount of moisture (fogs, mists and rain) in the atmosphere would condense upon the glasses, and thus render vision with them not only absolutely useless, but positively detrimental. The practice of permitting persons possessing normal or standard vision of one eye only to

occupy positions having control of life and limb of the people, should be inhibited by law. A cinder, a grain of sand, a speck of dust, an insect, or any foreign body which may likely be blown into the sound eye of the person entrusted with the lives of the people, would be fraught with grave and serious consequences.

In the navy and maritime service it may be presumed that perfect vision without glasses would be insisted upon, as the glasses would become useless as soon as their surfaces are dimmed by the ocean spray. A person otherwise employed than in the hereinbefore mentioned cases may be an excellent officer or employe, notwithstanding that his eyes require the assistance of glasses; it is essential, however, that the eyes which have the required acuity of vision when corrected with glasses shall be free from progressive forms of disease, which are not uncommon in the "short-sighted," and which tend toward an increase of the affection.

The British government provides for most departments of the Home and Indian civil service that the candidate, when furnished with glasses not exceeding the specified degree, shall possess vision equal to one (normal) with one eye, and equal to two-thirds with the other. This is perfectly simple and intelligible, and will enable any medical man who possesses a case of testing lenses and the proper sized (Snellen's) type to determine at once all but doubtful cases, which may be near the margin one way or the other, and may require special skill or methods of investigation. It is worth while to mention that the fear commonly entertained lest glasses may be a source of danger during active army operations was completely negatived by experience of the German army in France, although both men and officers in the German army were permitted to wear them.

The British government, however, with due consideration of possible loss or breakage, fixed the standard of acuteness of vision for which men are likely to engage in out-door occupations at such a point that the candidate should be able to see to ride across the country, to play cricket, and to read and write without glasses, although he might see much better with them. Squint, color blindness, ocular paralysis, or any serious disease of the fundus, renders applicants ineligible.

The prospective candidates for appointments would do well to have their vision tested and see that they are able to meet the requirements before undertaking a special course of study or seeking occupations where certain defects of sight disqualify. It is to be hoped that the general government, as well as State and municipal authorities, will, at an early date, promulgate by law a code of regulations, setting forth the minimum standard of visual requirements to render applicants eligible for commissions or positions in the various departments or branches of a service. By the promulgation of these rules or regulations a step will be taken in the direction which will be highly advantageous to all who are interested in the future members of the rising generation.

XXXIV. EXOPHTHALMIC GOITRE.

M. F. COOMES, A. M., M. D.,

LOUISVILLE, KY.

Geogiewsky "has conducted some experiments which tend to prove that the symptoms of exophthalmic goitre are due to the hypersecretion from the thyroid gland. Dogs and rabbits were fed with preparations of thyroid, and there followed symptoms which closely resembled those of Graves' disease—*i. e.*, tachycardia, increased respiration, polydipsia, glycosuria, and later general depression and disturbances of the digestive organs and of the nervous system, which latter were more marked in young animals than in old ones. When the administration of thyroid was stopped the animals recovered, unless the nervous symptoms were too far developed. In none of these cases were either exophthalmos or goitre produced."

Notthaft records an interesting case, "in which a man took for obesity nearly 1,000 five-grain tablets of thyroid extract within five weeks. After the first three weeks he began rapidly to develop the symptoms of acute Graves' disease, with all the characteristic signs." When the thyroid extract was stopped and the patient put upon arsenic all the symptoms disappeared quickly, excepting the eye changes and the goitre, which were still notable for about six months. The headache and pains, which are so common in thyroid poisoning, were absent, and all the symptoms of exophthalmic goitre were present, so that Notthaft believes that it was actual acute Graves' disease. He expresses the conviction that this disease is due to qualitative changes in the thyroid secretion, and thinks the occasional good effects from the use of thyroid gland may be due to the fact that the patient is unable to secrete the proper quantity of normal product of the gland, and does secrete a product which is abnormal, and which causes poisoning. After a very elaborate study of the literature, the author insists that the only theory of causation of the disease that is justified is that it is due to changes in the thyroid gland.

Berard has observed fever in 60 per cent. of cases of partial thyroidectomy; in 70 per cent. after exthyreopexy, and in 80 per cent. after the whole gland was removed. The remarkable fact about this fever is that there are no associated symptoms, excepting perhaps flashes of heat, some excitement and excessive sweating. The skin may show hyperemia from vasomotor changes, but the tongue remains normal; the alimentary tract rarely shows abnormalities, though when the fever is disappearing diarrhea may be experienced; and there are no changes in the heart and lungs. There is, therefore, no infection in these cases, and they do not correspond to any acute myxedema. Berard has

noticed that the amount of laceration of the glandular tissue which is caused by the operation is proportionate to the occurrence and degree of the following fever, and some persons will acquire fever by taking thyroid extract or iodothyrin, so that the fever seems due to an excessive amount of thyroid secretion, set free by the trauma, or perhaps by the irritation of the operation. In exophthalmic goitre the thyroid secretion is very poisonous, and he believes that it is the discharge of this secretion into the circulation which causes certain cases of very high temperatures, with frequent fatal issue, which follow operations upon the thyroid gland in this disease.

Eulenberg, after considering the theories of origin of Graves' disease, states that the most rational is that it is due to an intoxication from the thyroid, which chiefly affects the nervous system. Hence the most rational treatment is that directed toward the nervous system, and, if necessary, the removal of a portion of the gland.

Vigouroux suggests that Graves' disease is due in some cases to auto-intoxication, of probable intestinal origin, which especially affects the thyroid. In other cases it is due to an intoxication which is essentially thyroid secretion, this being perhaps of abnormal constitution.

F. Blum, after an elaborate paper upon the thyroid gland and its functions, concludes that the iodin found in this gland has for its purpose combination with poisonous substances, which combination renders them innocuous. This occurs during the circulation in the blood, and when they are returned to the thyroid the poisonous substances are excreted in harmless form, while the gland retains the iodin.

The cause of exophthalmic goitre is unquestionably of thyroid origin, mostly due to the overproduction of the secretion of this gland, as it is well established that many of the symptoms of exophthalmic goitre follow the excessive use of thyroid extract, thus showing conclusively that this disease is due to the production of thyroid secretion. There are a number of theories concerning the exact seat of the disease. It is claimed by some that it is due to disturbed innervation; others think the disease must be due to disease of the medulla oblongata; others that it is an affection of the sympathetic nerves, or that it is a disease of the central nervous system, associated with chronic intoxication. There can be no doubt but what the sympathetic nervous system plays an important role in the production of this disease; whether the part taken by the sympathetic is primary or secondary is not known. However, it is most likely secondary, as this system of nerves controls involuntary actions, and controls the trophic influences of many organs of the body.

The excessive production of thyroid secretion cannot be questioned, but the point is, What induces this excessive secretion? Is it deficient action of the nerves which preside over this gland and inhibit its action? Whether this be true or not, the removal of the cervical sympathetic ganglia is certainly productive of most wonderful results. The following report concerning the

removal of the cervical sympathetics is interesting and almost conclusive in this connection:

"Faure, of Paris, excised the cervical sympathetics three times with one death, and advised bilateral removal, with a delay of a few days between the operations. Jennesco reported three cases of simple section of the sympathetic, all successful; partial resection twelve times, with eleven cured and one unrelieved; an entire bilateral resection twice, with good results."

The writer operated on the 7th of April, 1900, upon a colored woman 29 years of age, removing the three cervical sympathetic ganglia on the right side. This was a most typical case, and had existed two years, receiving the ordinary treatment at the hands of different physicians. Her temperature preceding the operation was 101; the average pulse rate 140. The temperature and pulse records show that after the operation her temperature went down below 100, and the third day after the operation the pulse rate fluctuated, being 110 on April 19, when she was discharged from the hospital, and that the temperature was normal, with the exception of two or three days, when it was up a degree or two, as a result of irrigation of the wound. There was no suppuration whatever in connection with this operation; all the unpleasant symptoms gradually decreased; there was a decided improvement in the exophthalmos, the eyes receding very perceptibly; the excessive nervousness disappeared almost entirely, her sleep becoming peaceful, and there has been a decided increase in her bodily weight—a very great contrast to her restless condition preceding the operation.

There is much to be said concerning the removal of the cervical sympathetic ganglia. As a simple surgical operation, there is nothing unusual about it except its magnitude. There must be a cut made from the tip of the mastoid process to the point where the middle and the outer third of the clavicle unite. Other operators say, carry the cut from the mastoid to the acromion process; but this cut makes the operation much more difficult than the one described by the writer. After the skin and superficial fascia have been cut, the remainder of the work must be done with a dull dissector until the ganglia have been exposed. The superior should be searched for and all of its connecting branches, except the interior ones, severed. The inferior ones serve as a guide to the second ganglion, and from this the fibers leading down to the inferior ganglion serve as a guide to that body. After the ganglion has been removed it will be necessary to close up the wound so as to leave no dead spaces, the greatest care being necessary to see that the wound does not become infected. The neck should be enveloped in cotton after the gauze has been properly applied, and then a starched crinoline bandage should be put around the neck in such a manner as to make it immovable; in doing this it will be necessary to make a figure of eight under the arms.

Some authorities recommend the operation on the opposite side within ten or twelve days after the first one has been performed. I cannot see the neces-

sity for this haste; under ordinary circumstances I would prefer letting at least twenty days elapse between the operations.

There have been so few cases of the removal of the cervical sympathetic ganglia, and the time has been so short, that it is impossible to say what the final result will be. It would seem that to remove these ganglia, and rob the eye and the thyroid gland and the heart of their influences, would most certainly result in a disastrous manner; however, there must be a compensating influence somewhere by which the action of these ganglia may be substituted for in some other way, so as to have their functions properly cared for.

All of these cases will be watched with great interest, both by surgeons and practitioners of medicine, because the medical treatment of this disease is tedious, and, to say the least of it, generally unsatisfactory.

XXXV. THE THROAT AND NOSE IN SCARLET FEVER.

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Thinking the subject has received too little attention from the general profession, is the apology I offer this body for the short paper I present to-day. We all know that the first symptoms of scarlet fever are in a large majority of cases found in the throat; that infection is more often through the throat than any other part of the body; that scarlet fever is produced by scarlatinal virus, whatever that may be; that streptococcus pyogenes, staphylococcus aureus, with other pus producers and toxins, the diphtheria bacillus, one or all of these factors are seen in each individual case; that the primary lesion of the skin, tongue, mouth, pharynx, tonsils, etc., is with the superficial lymphatics and capillary blood vessels; that wherever we find an eruption we find especially the streptococcus. We all know how readily the lymphatics, especially those of the neck, become involved.

Scarlet fever I think resembles diphtheria in many of its symptoms, especially in those seen about the throat; we know they are frequently associated. These being facts, then how important close attention to the throat must be, and all of us know how little attention is paid to it. Lemoine, with Le Gendes and Sevestre, think that the contagion of scarlet fever starts from its port of entry, the pharynx; he believes that too much attention is paid to the skin and not enough to the mouth, where the contagious principle may linger for a long time. Enlargement of the lymphatic glands is a most constant symptom. With this comes involvement of the blood, kidneys, heart, lungs, intestines, spleen and peritoneum. Alonzo Clark says: "There is no scarlatina without the ex-

istence of inflammation of the pharynx; an eruption without it is not scarlatina." I take it we are all too well acquainted with the throat lesions, and with those of the tongue, lining of the cheek, etc., for me to mention them here; they are about such as are found on the skin, only they are well advanced usually when the skin eruption shows. The pharynx, tongue, tonsils and surrounding region, being usually the first involved, are the first to heal. With our present knowledge of the angina of scarlet fever it must be a streptococcus infection. We all know the diphtheria bacillus is found in a small per cent. of cases, especially in that form known as pseudo-diphtheritic angina. The classification of scarlatinal angina is difficult, as one form so frequently shades into another; still a classification, such as streptococcus, erythematous and membranous form, has been made. The latter form adds to the dangers of infection that of mechanical obstruction; when there is not true diphtheria the membrane is not liable to leave the faucial tonsils. Yet, since we have tonsil tissues in the nose, pharynx, larynx, and on the base of the tongue, why not have the same membrane, *although not diphtheria,* extend to any place in which there is tonsil tissue?

Of course the prognosis is more serious in the second form than in that of the first, and still more so in the third. Selner and Thure found in a great many cases of scarlet fever only 2 per cent. of diphtheria. Leichtenstein found in an epidemic of scarlet fever in a hospital at Cologne that four-fifths of the cases had diphtheria. When we recall the fact mentioned before, that really no tissue of the body escapes this infection, which in a majority of cases enters through the throat; that we may have suppurative inflammation of the eye, cellulitis extending from the neck to the umbilicus, perichondritis, pleuritis, nephritis, malignant septicemia, true croup, suppurative inflammation of the ear, with all its dangers, and even a gangrenous angina, and it being a fact that close attention to the throat and nose may prevent much of this, we all can surely see what good may come of it. I believe there is no one present who will assert that such attention to the throat and nose may not be of much service.

I do not think it necessary for me to draw any more serious picture of scarlet fever, its complications and its pathogeny. Some authors have said that the throat in scarlet fever bears the same relation to the disease that the primary sore does to syphilis. I think even more so, as illustrated by the effect of local treatment. In a throat in which there is absence of the Loeffler-Klebs bacillus, simple washes of listerine alone or mixed with hydrogen dioxide, or even Seiler's fluid or Dobell's solution, or normal salt solution, all are serviceable. They should be applied with a spray or mop, or if the upper pharynx and nose are involved, the post-nasal syringe, with the solution diluted. Of course, with very young children, the spray and medicine dropper must be substituted for the syringe. If the Loeffler-Klebs bacillus is present, then Loeffler's solution must be supplied locally; or, still better, some mild wash

for cleanliness and an injection of serum made, to be repeated, if necessary. When the Loeffler-Klebs bacillus is not found, the streptococcus serum of Parke, Davis & Co. is of much benefit.

My experience, and that of others, has been in scarlet fever, that if the throat gets prompt and close attention, the disease is robbed of many of its dangers. In those cases in which the child is rebellious and in resistance of the treatment much depression follows, as little local treatment as possible must be used. In this, as in diphtheria, the serum injection does away almost entirely with local treatment, and entirely with any *severe* local treatment.

XXXVI. CANCER OF THE UTERUS.

LOUIS FRANK, M. D.,

LOUISVILLE, KY.

"It is better not to apply any treatment in cases of occult cancer; for, if treated, the patients die quickly; but if not treated, they hold out for a long time."—*Hippocrates, by Adams.*

Notwithstanding the not altogether brilliant results, in so far as relates to the permanent cure of cancer in general and of the uterus in particular, the above aphorism would never have been written by Hippocrates had the result of treatment of cancer been as radical in his day as now; and it is also true that probably the saddest pages in all medical history and literature are those that deal with cancer in women. This is not due entirely to our inability to cure the disease, as I shall endeavor to show, but to other reasons as well.

When we take into consideration the great frequency of neoplasms as primary growths in the generative organs, remembering that 70 per cent. of all these growths occur in these structures, and then bear in mind that about one-half of these are located in the uterus, the subject becomes one not only concerning the specialist and the general practitioner, but the laity as well.

To the surgeon it is one phase only of a frequent disease, the treatment of which is the same in all parts of the body, the etiology and course of which apply with equal force to all organs and portions of the anatomy.

To the general practitioner this topic should be even of more absorbing interest than to the specialist, for upon him falls the responsibility of these patients first, in that he is the first to see them; to diagnose the ailment and to advise the treatment.

Much prominence has been given to the study of cancer of late by the research work being done by Park in New York, and by many foreign investigators and statisticians, in regard to the etiology and prevalence of maligant disease.

My remarks in this paper will be directed not only along the lines of cancer of the uterus directly, but I shall also deal with its frequency, with some statistics as to its occurrence and increase.

As to the etiology of cancer and the reasons for its great frequency in the uterus: The possibility of the contagiousness of cancer has been entertained from time to time for many centuries, among others by N. Tulpies, in 1672. The specific cancer organisms has at various times said to have been bacteria, then at later times animal organisms, or protozoa. Hake had in 1839 noticed certain bodies, which he regarded as psorospermial parasites, but which Virchow in 1847 supposed of endogenous cell formation, and due to degenerative changes. It was Darier, in 1889, who gave renewed impetus to this study, and we find to-day that many pathologists, believing in the parasitic nature of the disease, are working continually with the one aim in view of discovering and establishing beyond the peradventure of a doubt the specific organism of this growth. And we may say, in passing, that our own country is not behind in this work, as is shown by the appropriation made by the State of New York for the establishment of a laboratory for studies along this line. Already Park, who has charge of the work, claims to have discovered sufficient evidence to establish in his own mind a belief in the germ theory.

There are so many analogies between malignant tumors and infectious granulomata in the characteristic reaction of the cells, the way in which they group themselves, their internal activities and behavior in every respect, that he says they cannot be disregarded. His results have been such as to leave no doubt in his mind that "cancer is unmistakably a parasitic—*i. e.*, an infectious—disease."

Park, in March of this year, repeats his views as to the infectiousness of cancer, and cites numerous authorities to bear him out. Further, he believes there are different varieties, or organisms for different malignant growths. The authorities he quotes, and the experiments and researches of others which he adduces to bear out this theory of the specific nature of cancer, seem to be quite convincing, and, to read the writings of these men, would leave one in no doubt as to the nature of cancer. On the other hand, we have many men, of whom we may mention Prudden in America, and Roger Williams in England, who are not prepared to accept these explanations. Williams, from whom I shall quote frequently in this paper, has made probably the most extensive researches of any one in this line. In speaking of the pathogenesis of cancer, he says: "A striking feature about cancerous growths is the great morphological difference that attains between them, according to the locality whence they originate. * * * Herein they differ completely from the inflammatory pseudoplasms, which present the same indifferent structure, no matter in what part of the body they arise." Their automatous growth is also remarkable, he says, "which differs from inflammatory pseudoplasms, which tend to disappear. The great resemblance always noticeable between primary

and secondary cancerous growths is a phenomenon of similar import. * * * It seems never to have occurred to those believing in the microbian theory how unlikely it would be for microbes transported to the liver to produce in this organ the typical structure of breast cancer. Surely, if the secondary lesions were really due to microbes, these would infect the liver cells, and so cause the formation of typical hepatic cancer."

"Hyperplasia and not inflammation is the starting point of every neoplasm." He believes cancer probably due to cell emancipation from restraining influences, and reasoning along this line he shows how, in lower plants and animal life, this cell emancipation tends to form new individuals by agomogenesis. These cells, being in higher individuals more or less always under control, do not form new individuals, but only such structural modification as neoplasms. In cancer and sarcoma "the cell potentiality is of the highest order, hence the persistence of the excessive proliferative activity of their constituent cells, which is a notable feature of malignancy."

According to him there is absolutely no evidence to prove that cancer is ever contagious, and, referring especially to the topic under discussion, he found in 134 cases of cancer of the penis, collected by Demarquay, only one man whose wife had uterine cancer.

McMurtry states that he knows of no case of inoculation to the surgeon in the great number of cases that have been operated upon.

Prudden says that "we are not, I think, likely to apprehend the real cause of tumors until we approach the subject from the standpoint of the cell itself; until we know much more than we do to-day of the subtle influences which determine the vigor or the feebleness of its nutrition and its growth; the inexorable sway of its heredities; the factors which control its proliferations and its degenerations; and, perhaps more than all, that interdependence of closely or remotely related cells, which makes the living body an organism, and not a simple congeries of automatous units. * * * I cannot think of tumors as a superior sort of inflammation. I cannot understand to-day cell and tissue formation in response to the presence of microbes, except as a *protective effort against injury*. And so, finally, I fail to conceive how the development of a complex and elaborate structure, almost organized in character, such as we have in adenoma and carcinoma, for example, should be required, if protection against a microbic injury be the outcome of the process. Certainly I can recall no analogy for this conception in the varied responses to such injury with which we are already familiar."

Park claims, however, to have proven the parasitic nature of cancer by culture and inoculation experiments. And Plimmer claims to have fulfilled the laws of Koch for proving its specificity by finding these intercellular bodies, cultivating them outside of the body, producing tumors of endothelial origin, and again making pure cultures from these tumors and reproducing the same kind of growth by reinoculation into suitable animals. Certainly, if

his experiments have been correctly carried out, he has gone further than any one else in proving the proposition. His growths are so far of endothelial origin, but whether or not these endothelial growths are analogous to true cancer, from which his inoculations were made, and whether or not they produce in animals or man tumors similar to the original growth, terminating fatally with the well-known symptoms, cachexia, etc., is not sufficiently proven for us to accept the organism as the cause of malignant tumors.

In the experiments of Washburne and Smith the inoculated neoplasm developed for a time and then underwent retrograde changes, disappearing completely, rendering the animal immune for a certain time afterwards. In some of their cases the inoculated material showed all the signs of malignancy, but still they believed that evidence is lacking to connect the bodies found in these growths definitely with the causation of the tumors.

A great trouble heretofore has been in all work tending to show the infectiousness of carcinoma, that there has arisen confusion, oftentimes due to the manner of making the experiments. Transplantation of cells and tissue has been done rather than inoculation with the organisms themselves. Langenbeck, by using filtered emulsions from cancer, however, caused the disease in dogs, or at least produced tumors resembling cancer. This, however, might be brought about by some chemic agent in the cells themselves, and may not have been due to bacteria or protozoa. Until Koch's laws can be carried out in detail all statements as to its specific character must be taken with some doubt.

Bosc has also approached near a demonstration, but still not a satisfactory and unquestionable proof, and until this can be done, notwithstanding many seeming proofs, we cannot accept this theory as to the cause. For my own part, after a careful perusal of the literature, I am in accord with Williams and Prudden in this matter. I sincerely trust, however, that the future may bring forth something positive in this line, as it would do much toward lessening the mortality and frequency of this almost incurable disease.

If it is bacterial in origin, why is it that the cervix is so frequently the starting point of cancer of the uterus? Also, why is it that the breast ranks next to the uterus in frequency for the location of these growths? This cannot be explained upon the idea that these organs are unprotected, that they are in a more exposed location; it cannot be explained upon the idea that there is more irritation at these points; but it is due rather to other causes, as is so clearly shown by Williams in a paper read some years ago, in which he states, in speaking of cancer of these parts: "The very great frequency with which the uterus and mammæ are affected is particularly striking. From the fact that both of these parts are subject to remarkable post-embryonic developmental changes, it may be inferred that they are normally rich in cells, which still retain much of their embryonic capabilities for growth and development. It is probably owing to this peculiarity that they are so much more prone to originate neoplasms than other parts of the body.

"The following considerations tell in favor of this view: It may be said of neoplasms in general that they arise from archiblastic (epithelial) structures much more frequently than they do from parablastic (connective tissue) ones. * * * Of all the tissues of the body the archiblastic ones have, on the whole, departed less from the primordial type than any others, hence their cells still retain their primitive powers of growth and reproduction in a higher degree than others."

Before leaving this part of the subject I wish to call attention of the Fellows to some statistics regarding the frequency of cancer, the ages and sex affected most, and the great increase of the disease, as I believe it may bring home to many of the general practitioners especially the importance of the subject, and impress upon them the necessity of always being on the alert for it, so that we may employ the proper diagnostic means and be able to give our patients the most prompt and best treatment which surgery to-day affords.

It is an appalling fact recognized by all authorities, though they may differ as to the cause of cancer, and as to the rapidity of increase, that it is far more common now than formerly, and that it is progressively and steadily becoming more widespread and causing more and more deaths each year.

Again, referring to Williams, we find the following: "That in England and Wales in 1840 cancer caused one in 129 deaths, a mortality from cancer of 0.77 per cent. In 1896 deaths due to this cause were one in 22, a percentage of 4.54. Thus the proportionate mortality is four and one-half times greater now than it was half a century ago." The increase in women from 1851 to 1890 has been 91 per cent. He attributes this increase to the manner of living, and thinks that cancer can be abolished or lessened by cessation of gluttonous ways and habits of living.

Heimann's statistics show that in Austria in 1877 there were 2,952 deaths from cancer. In 1896 this had increased to 12,548. In the order of frequency these growths occurred first in the uterus.

In Park's statistics, based upon the number of deaths in New York alone, we find in 1887 there were in New York State 2,363 deaths from cancer, and 11,609 deaths from consumption. In 1898 just eleven years afterward, the death rate from cancer had increased to 4,456, almost double what it was previously, whereas the death rate from consumption had only gone up to 12,552. Park does not attribute this increase to improved diagnosis, as the reverse is rather true, since in many cases deaths formerly supposed to be due to cancer are now classified where they properly belong in other lists; also that many more cancers are cured than formerly. He makes one striking and startling statement, which is to the effect that if during the next ten years relative death rates are maintained, we shall find ten years from now, viz: in 1909 there will be more deaths in New York State from cancer than from consumption, smallpox and typhoid fever combined. In the last fifty years a careful estimate of statistics from all countries by Williams shows that the

cancer mortality has quadrupled itself, whereas the death rate from phthisis has diminished more than one half. And this ascendency, according to all authorities, is still in force.

Park attributes the great increase of cancer to its infectiousness. We find, however, that the statistics of Park are questioned by Pryor, who says there are errors in the estimates, due to peculiarities displayed by disease and conditions influencing them, so glaringly apparent that no credence can be placed on such estimates.

Newsholme, of England, discusses Williams' statistics, and believes the increase is only apparent, due to improved diagnosis and careful certification of causes of deaths; but, notwithstanding this, says that cancer kills annually three-eighths the number claimed by phthisis; that it is between three and four times as fatal as typhoid fever, and has a much larger death roll than whooping cough or measles, though the latter have a much larger field or population for operation.

In England, in the twenty-five years between 1848 and 1872, we find the total mortality to be 10,512,146, of which 177,300 died of cancer, or one in every 59 deaths. Of these, 123,433 were women.

In 1889 the returns of the Register General of England showed that one in every twelve females who reached the age of 35 years died of cancer.

In this country the total deaths from cancer in 1890 were 20,984, or one in every 2,984 of the population, the proportion to the total deaths being one in 41. In 1880 the death rate from cancer was only one in every 3,310 of the population, the proportion to the total deaths being only one in every 51, showing a decided increase, as you can readily see in this period of ten years.

Estimated upon the population of to-day, we find that there are in these United States between 80,000 and 100,000 cases of cancer; McMurtry places it at 100,000. Of these we may say that not less than 15,000 are cases of cancer of the uterus. In the State of Kentucky alone, based upon the population of one and a half millions, there are 2,500 cases of cancer. To bring this a little nearer home to you, upon an estimate worked out on the same basis, there are in the city of Louisville alone, with a population of about 200,000 people, 300 cases of cancer.

The health office of Louisville, Ky., shows that in 1895 there were a total of 3,510 deaths, of which 81 were from cancer, 18 of them being specified as of the uterus and 37 not specified at all. In 1898, out of 3,164 deaths, there were 121 from cancer, of which 65 were unspecified and 23 specified as of the uterus. This year there have been thus far nine cases of the uterus in a total of 40 reported, 20 of which are not specified, with a total thus far of 1,236 deaths. This shows the local increase of the disease.

From all the statistics which we have been able to gather we find the average age at which cancer of the uterus occurs is about the age of 44 years. The earliest age in 500 consecutive cases of cancer of the uterus was 22 1-4 years.

Gusserow, by massing the statistics from a number of continental and English observers, found only two cases of cancer of the uterus in women under the age of 20 in 3,385 cases. Two cases of glandular cancer of the cervix have been reported by Schanta and Glatter occurring in patients under 17 years of age; Munde reports a case occurring at 18; Beigel and Schop one each at 19; Billroth one at 20. I have just seen a case occurring in a young married woman of 24.

These figures, I trust, will give you some idea of the prevalence of this disease and of its undoubted increase, not only in numbers, but in proportion to the number of persons living, for we find beyond peradventure of a doubt that this increase is absolute and real. For instance, in the statistics quoted above, in America ten years ago we find that the death rate from cancer per million of the living was 296, whereas to-day it is 319.

It is a very striking fact that among the blacks in this country cancer is reported to have been exceedingly rare before the abolition of slavery; since that time the liability has been steadily on the increase, so that we find in the modern negro cancer is a comparatively common disease. Among savages and in the uncivilized we find it is practically unknown. For instance, in the white race, which we may say is the civilized race, we find the death rate from cancer is 35 4-10 per 100,000 of the living, whereas in the other races it is only 19 3-10 per 100,000 of the living. The higher we go in civilization, the more cultured the community, the more highly educated and refined the people, there do we find cancer the most frequently.

Having, I hope, impressed upon you by the foregoing figures the great dissemination of this disease, which we find is general, as I have stated, in all civilized countries, I would now call your attention to probably the more practical aspect of the subject—*i. e.* How are we to diagnose cancer of the uterus, and, having made the diagnosis, how are we to treat it?

The only hope we can have of reducing the mortality, it seems to me, is by making an early diagnosis. If we accept the microbic theory of the disease, the discovery and recognition of the organism would tend to hold it in abeyance; but until that is done, which seems to be far off in the future, if at all, our only hope is to get these patients under observation at the earliest possible moment and offer them then the only relief they have, viz: that which surgery affords.

Age does not become a great factor in making the diagnosis of cancer. It strikes me too many cases are overlooked on account not only of inability possibly to make the diagnosis, but the carelessness with which these patients are examined. Cancer being most frequent between the ages of 35 and 45, the symptoms which accompany it do not attract the attention either of the patient or oftentimes of the doctor, until the disease is so far advanced that nothing can be done looking towards relief. The one symptom which usually attracts the attention of the patient and causes her to seek relief is that of hemorrhage;

but this is a symptom which, to my mind, is not of such great importance from the standpoint of treatment as others which we have, for we find frequently those cases which present hemorrhage, or in which hemorrhage presents itself, as the prominent symptom, or as a symptom at all, have already reached such a degree of local dissemination, have become so widespread, that they are beyond hope of relief. Matthew Duncan states that we have no way of making sure of the beginning of cancer, even though we are constantly examining it; that the earliest and best grounds attainable for suspecting cancer are but indications that the disease has already considerably advanced. This, I take it, is true with reference only to the symptoms which send the woman at once to the physician.

I would call your attention to one important fact: Given a patient who applies to you for examination, and you find an ulceration or the so-called erosion present, look upon that case with suspicion. Ulceration of the uterus, as of other mucous structures, occurs in the vast majority of cases only from cancer, tuberculosis or syphilis. Practitioners, as a rule, or at least one would judge so from impressions current among the laity, loo upon ulceration of the uterus as a common occurrence, as cases of very little import, whereas true ulceration of the uterus, or of any other mucous structure, is of the utmost importance. From the clinical symptoms, from the clinical history, or even from constant observation of a case of cancer of the uterus, it is impossible oftentimes to make a diagnosis. As Duncan says, when we are able to make the diagnosis clinically, the disease is often considerably advanced. How often this is true those doing work in this line know only too well. How, then, are we able to diagnose cancer of the uterus early enough to be of practical benefit to our patient? I would answer this by saying only by use of the microscope. In every case where we are the least suspicious, every woman passing through the climacteric in which the least suspicion arises should have the uterus or cervix curetted and the material examined microscopically. In other words, the microscope affords the only means of making an absolutely certain diagnosis, and in this locality and in this form of disease there is never much chance of error if the examination be properly made. The microscopist, however, should know from what portion of the uterus the tissue comes, and also the relation of the tissue to the axis of the uterus itself. By that I mean he should not be given specimens which he is likely to examine in transverse section, when they should be examined in vertical section, and *vice versa*. Some surgeons and pathologists in this country have gone so far as to advise amputation of the cervix for microscopical examination in suspicious cases. If we are to cure any case by operative means, I believe it will be a case in which diagnosis is made by microscopic examination. Certainly the number of recurrences would be less, and the mortality rate would be much diminished if this should be carried out. Upon the findings of the microscope the treatment of these cases should depend. Ordinarily, when a case has reached

such a stage that he who runs may read, the disease has invaded other structures, local dissemination has been so great, probably constitutional dissemination may also have taken place, and they are beyond operative aid; or even if operated upon, we cannot promise a great deal, nor can we hope for success.

The statistics upon the recurrence of cancer after operative intervention are not very complete. In 59 cases operated upon by Leopold, in which there was no sign that the disease had gone beyond or outside of the uterus, only 14, or 23 7-10 per cent., recurred. In 68 cases, on the other hand, in which the disease had further advanced, 45, or 66 1-10 per cent., of recurrences were noted. This at once impresses upon us the importance of early diagnosis, if we are to hope for cures.

McMurtry, in an article recently read, states that in 25 selected cases operated upon, only four are now living, and of these only one has gone beyond the three-year limit without recurrence. One of them has a recurrence, and in the other one only two and a half years have elapsed since the operation. As yet in this latter case there has been no return of the disease. These statistics, counting the case operated upon two and a half years ago as a non-recurrence, gives result of only 8 per cent. of cures which we may say are permanent.

Roberts, in ten cases operated upon, states that only one woman has passed the three-year limit.

In speaking of the treatment of the disease I shall be very brief. My own opinion is, in which I believe I am in accord with all operators, that if there is no involvement of the broad ligaments or of the vagina, no matter if we cannot prove that there is no dissemination, we should at least attempt a cure by total removal of the uterus. Total removal of cancerous uteri has given far better results with reference to complete cures without recurrence than has high amputation of the cervix or partial removal of the uterus itself. This is well shown by the tables of Winter. If the infection has extended beyond the cervix, or if we have reason to believe that the disease has reached the stage of infiltration, then high amputation, with application of the cautery, will prolong the patient's life and afford much relief. If there is lymphatic infection, if there is extensive infiltration, then curettage of the diseased structures, with the application of Paquelin cautery, burning out all tissue possible, will render the patient far more comfortable, and possibly prolong life a few weeks or a few months. Much can be done towards the prevention of cancer of the uterus by the cure of cervical lacerations. This is well shown by Penrose, who states that in a recent series of 250 cases there were 11 of cancer of the cervix, whereas in 250 immediately preceding these there were 27. He says this observation is of considerable importance when it is considered that the total number of cancers is on the increase, and he thinks it is due to the more frequent employment of trachelorrhaphy. That

trachelorrhaphy will prevent cancer of the uterus I believe there can be no doubt, as the primary seat of cancer of the uterus, probably in the greater majority of instances, is at the site or in the scars of old cervical tears.

Cancer of the uterus is primarily and practically not a disease of the virgin or of sterile women, but of the mother of the family. In fact, we find upon an average women who suffer from cancer of the uterus have borne more than four children. I believe that much can be done along the line of cure and prevention by educating the laity so that they will understand the importance of uterine or pelvic symptoms, and especially during the menopause. Women passing the menopause should be constantly under the observation of a competent physician, one who is able to understand the meaning of symptoms referable to these organs, and who can or will, if necessary, have microscopical examinations made from time to time if the least suspicion arises. If this were done, no matter whether cancer be of bacterial origin or not, I believe the lives of many women would be saved; and when you recall what I have stated in the foregoing, that cancer is on the increase, that it is a disease of civilization, a disease of the highly educated, that it is predominant in women, and of all women it occurs most frequently in the mother of the family, its importance comes home to us all.

CONCLUSIONS.

It has not been sufficiently proven that cancer is of bacterial origin.

There is no question but cancer is on the increase.

The laity should be educated as to a proper appreciation of the prevention of cancer and its cure by early diagnosis and operation.

The only absolute means of early diagnosis is the microscope.

The mortality—deaths and recurrences—can be lessened by early operation.

Cancer of the uterus can often be prevented by trachelorrhaphy.

LITERATURE.

Coley: Twentieth Century Practice, Wm. Wood & Co., 1898.
Heimann: (Archiv. f. Klin. Chir.) Medical News, April 15, 1899.
Hippocrates: Genuine Works of, by Adams, Vol. II, p. 256.
Grant: (Denver Med. Times, August, 1899) Am. Gyn. and Obs. Jnl., October, 1899.
McMurtry: Am. Prac. and News, March 15, 1900.
Pryor: Medical News, May 27, 1899.
Plimmer: (Practitioner, April, 1899) Medical News.
Prudden: Medical Record, March 10, 1900.
Park: Medical News, April 1, 1899.
Park: Medical News, March 3, 1900.
MacEvitt: Am. Gyn. and Obs. Journal, February, 1900.
Penrose: Annals of Surgery, June, 1899.
Roberts: Am. Prac. and News, March 15, 1900.
Smith and Washburne: (Edinburgh Medical Journal, January, 1900) Medical News.
W. Roger Williams: Twentieth Century Practice, Wm. Wood & Co., 1898.
Williams: British Medical Journal, September 10, 1892.
Wiener: Am. Jour. of Obs., December, 1899.
Winter: Annals of Gyn. and Pediatry, February, 1891.
Newsholme: Am. Jour. of Obs., June, 1899.

XXXVII. TREATMENT OF BRONCHO-PNEUMONIA AND RESULTS.

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While we have no doubts regarding the morbid anatomy and symptomatology of broncho-pneumonia, and the etiology has been firmly established, yet when it comes to treatment we have no well-defined landmarks to guide us, nor a plan of treatment that has been recognized by the profession as giving general satisfaction. All the more do we regret this fact when, at times, we are confronted with a discouragingly high mortality rate.

The following is taken from the Journal of the American Medical Association of April 14, 1900, as giving us something more of an insight into the high mortality rate of this disease: "According to the health report of the city of Chicago, the deaths from consumption in the city during 1899 numbered 2,516, and from tuberculosis of all varieties and locations, 2,920, a percentage of 11.449 on the total mortality. During the same period the deaths from pneumonia also numbered 3,438, or a percentage of 13.48 of the total deaths. If we take the year 1899 alone, pneumonia would appear to be a much more important factor in the mortality than tuberculosis. Another striking fact is, that while the ratio of deaths from consumption to the total mortality has been nearly stationary for the past twenty years, and its ratio to population has decreased, that from pneumonia has increased rather than otherwise in both these respects."

In the treatment, first and foremost, great care is necessary in guarding against the development of this disease in all cases of bronchitis occurring in delicate children and feeble adults, especially following measles and whooping cough, in which bronchitis is constantly present, and the first stage of broncho-pneumonia ready to be ushered in with the slightest indiscretion that in any way lowers the vitality of the patient.

As soon as the existence of broncho-pneumonia is determined the gravity of the disease should be promptly recognized and the closest attention paid to every detail of treatment. We have what might be termed two classes in the treatment of this disease: first, those who advocate large doses of quinine and emetics; second, those who advocate small and oft-repeated dosage.

Hygienic conditions play a very important part in the treatment, and should command our early attention. The sick room should be well ventilated, free from draughts, and the temperature retained at 68 or 70 F., and the air kept constantly moist by the generation of steam.

The treatment resolves itself into constitutional and local. In regard to

the first plan, the patients that have the vitality to sustain large doses of quinine and emetics and an attack of lobular-pneumonia also, are very rare indeed.

There are two very grave objections to offer to this method of treatment: First, the gastric disturbances caused by both the emetic and quinine, and the cardiac depression which follows their use. Any remedial agency that tends to lower vitality should be discarded, and efforts put forward to husband the strength from the start.

There is often associated with the disease a catarrhal condition of the gastro-intestinal tract, and it is therefore often advisable to defer internal treatment directed to the condition of the lung for the first thirty-six or forty-eight hours and direct the treatment to the condition of the digestive tract Small and oft-repeated doses of calomel with Dover's powders may be given, and the results carefully noted, and the opiate increased or diminished as the case may demand, it acting as a sedative to the nervous system, favoring expectoration and inducing sleep. The mercury should be withdrawn when the desired effect is obtained.

Strychnia should be given hypodermatically with the first indication of a failing heart, and full doses are necessary, bringing the patient fully under its influence, and held in that state until all danger of heart failure is past. Strychnia is to be regarded as superior to whisky as a permanent heart stimulant, and there is less danger of gastric disturbance after its use than after the use of alcohol.

The preparations of ammonia, when the stomach will retain them, are valuable remedies, as they favor expectoration and stimulate the respiratory forces, thus increasing the pulmonary area open to respiration. During the entire course of the disease the diet should be liquid and nutritious, and given in small quantities at short intervals. Milk should form the chief article of diet, and weak milk punch is often serviceable.

It is seldom that an internal antipyretic is advisable, when we remember that the normal temperature of broncho-pneumonia is from 101 1-2 to 104 F. This temperature in itself is not so depressing or exhausting as would be such drugs as antipyrine, phenacetine and quinine, given in doses sufficiently large to control the temperature, and unless the pneumonia is complicated by malaria the latter drug is not indicated. Phenacetine is often useful in small doses to allay restlessness and produce sleep, but not in sufficient doses to act as an antipyretic.

The application of the ice bag to the head is a great aid in controlling temperature, and its use is especially indicated when we have muscular twitchings, hot, dry skin and restlessness. Poultices to the chest are objectionable on account of the difficulty in having them properly applied, their weight and the necessity of frequent changing adding to the discomfort of the patient. Mustard paste frequently applied upon cloths large enough to envelop the

entire chest and left in position for five or ten minutes, or until the skin is reddened, has a good effect as a mild counter-irritant. The skin should then be dried and covered with a thin layer of absorbent cotton and an oil silk jacket.

Good nursing, in the fullest sense of the term, is a most valuable adjunct, and it should be fully appreciated and insisted upon in every line of treatment.

To sum up. The method of treating broncho-pneumonia falls far short of giving us the desired results—every case is a law unto itself. We must treat the patient as we find him; we must treat the disease as it presents itself, and we must make our assurance doubly sure by a thorough and complete physical examination, urinalysis and family history, that no inherited constitutional disease lurks in the system and masks the true condition, thus minimizing what otherwise might be well directed treatment. We should look for indications of the existence in the same person of two or more morbid conditions, and direct our treatment accordingly, to the very best of our knowledge, and for the highest good of the life intrusted to our care.

XXXVIII. FRACTURES OF THE VAULT OF THE SKULL.

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In speaking of fractures of the skull, I shall refer to those only which concern the vault of the cranium. I shall not attempt to cover any save a very small portion of what can be said in reference to this most important branch of surgical work. Neither have I the time nor inclination to enter more fully into this special line of fractures than that of most practical interest to the busy surgeon.

Fractures of the vault of the skull in their varied forms and locations are at all times of such a grave character as to at once claim our most skillful supervision. As a matter of convenience we will consider fractures of the vault of the skull, both from fractures of the vertex and the lateral regions of the cranium.

The vertex is sparsely covered with soft parts, as is also the lateral aspects of the cranium, thus rendering these regions exceedingly liable to direct violence and fracture, which, under similar circumstances, the base of the skull would escape, because of its protection by a thick covering of the soft parts. and is practically never fractured from direct violence.

About 2 or 3 per cent. of all fractures occurring in the body are those con-

fined to the skull, the greater proportion of these belonging to the vertex and sides of the cranium.

"These fractures are produced in two ways: First, by the application of direct violence, such as blows, gun-shot wounds, etc.; second, from injuries sustained by the patient's falling and striking his head against some substance sufficiently resistant to produce fracture of the skull. In this instance the patient suffers either at the point of impact or from the weight of the body as it is impinged against the base of the skull." "Fractures of the vertex often vary from the very slightest fissures, which are followed practically by no important symptoms, up to the most complicated and crushing fracture, in which the skull is broken and shattered into many fragments." A fissure of the skull resembles a crack in a stone crock, and is not necessarily followed by the slightest symptom or displacement. It has frequently been observed that these fissures do not by any means always involve the inner table of the skull.

Hoffman has described a case with three crossing fissures on the lateral aspect of the skull, produced by a blow upon the side of the head, only one of which extended completely through the entire thickness of the bone, the others being limited to the external table only. This is, however, the exception, and not the rule.

"Fissured fractures often radiate from areas in which more serious injury has been inflicted." In this way it happens that a fissure or a crack may extend almost entirely around the skull. An extreme case of this kind was that of the Duke of Orleans, in whom a fracture separated the upper third of the skull in almost its entire circumference.

A case of a young man described by Hester is unique, in that the skull was literally divided into halves by a fissure extending from the foramen magnum up in a median direction, entirely across the occipital and frontal bones, into the ethmoid and sphenoid.

Sir Astley Cooper reports a case which occurred in the practice of Chandler, in which the skull was broken into an anterior and posterior half by a fissure extending at right angles to the anterior posterior axis. Park has also met with a case in which the cranium was practically broken loose from the face.

It is to be remembered that in the majority of these fractures the two margins remain upon the same level. When depression, however, does occur, it is generally in young subjects, whose skulls are flexible.

"In splintered and comminuted fractures there is generally a border line within whose limits the bone is more or less broken into fragments, and beyond which possible fissure may and often does extend." Within this area there may be numerous fragments of different sizes; they may be separated or driven into each other, thus becoming impacted, the degree of comminution in all of these cases depending upon the character and degree of force applied in connection with the friability of the cranial bones.

The hypothesis of the relative infrequency of injury in some remote portion of the skull in these cases is that the violence has been expended at the point of impact.

In a comminuted fracture of the skull the number of fragments may range from two or three to twenty-five or thirty; this, of course, depending largely upon the friability of the skull and the character of the injury. In this variety of fracture we may or may not have depression, the gravity of the case depending largely upon the extent of the depression, the region depressed, and as to whether or not any spiculae of bone penetrate the brain substance, and if so to what depth and in what locality.

"We also meet with fractures of the skull with absolute loss of substance. This class of fracture is generally due to penetrating or gun-shot wounds, by which a round hole is produced in the bone, often with extensive splintering and loss of substance, accompanied by the penetration of fragments into the brain substance."

The internal opening of the fracture is larger and more splintered than the external wound, and these fragments generally depress the brain. This condition of affairs applies equally well to perforating fractures of the skull from any cause.

Should a bullet pass entirely through the skull it carries in a large area of the inner table as it goes in and carries out a large piece of the external table as it passes out. The result of such injuries is at times so extensive that the skull has the appearance of having been blown to pieces by some bursting force from within, rather than by the application of any external injury.

We often observe fractures of the external table of the skull alone. It is also an established fact that we, too, have fracture of the inner table without perceptible evidence of external injury to the skull. "This, however, is not of frequent occurrence, and may be regarded as somewhat more of a surgical curiosity than otherwise."

In the Freiberg Museum there is a skull with a long lateral fissure of the frontal and lateral regions, confined entirely to the inner table. In gun-shot wounds of the skull, with radiating fractures, the number of the fissures in the inner table generally exceed those in the outer. So, too, in depressed fracture of the skull, the inner table is usually broken into more fragments than is the external.

In fracture of the inner table of the skull it is generally broken into a number of loosened fragments, with more or less injury to the meninges and brain, it being rarely simple and unaccompanied by complication.

Bergman reports a case of a Papal soldier, who was wounded in 1848, and who died fifteen days afterwards of meningitis. Externally there were two trifling fissures, while the autopsy showed the inner table fractured into four fragments, which were somewhat displaced in the shape of an inverted cone and were pressing upon the brain. This case explains why it is that seem-

ingly unimportant injuries to the head are often followed by inflammation of the meninges and rapid death.

It is frequently impossible for us to determine whether the fracture extends through the entire thickness of the skull, and especially when no constitutional symptoms are present. The absence of serious symptoms often has a tendency to confirm us in our opinion that we have only a superficial injury confined to the external table with which to contend.

If, however, the depression is as large or larger than a silver quarter, or if the injury to the head be abruptly circumscribed and perceptible throughout the entire circumference of the circle, it is so apparent that the internal table is injured that we should not hesitate to do at once an exploratory operation for the relief of any trouble that may be present.

"In considering fractures of the vortex we know that they can only occur when the natural limits of its elasticity have been passed and the cohesion of the bones overcome." Consequently the great elasticity of the vertex of children allows of considerable depression without fracture.

Errichsen reports a case by Green (Vol. I., p. 318) of a child with its vertex so deeply depressed by injury that an egg could be laid in the depression, where it would remain. The child displayed no symptoms of brain trouble and remained quite well. Notwithstanding the foregoing fact, skulls are generally so fragile that they more frequently fracture than bend.

For general purposes I believe it is good surgery to trephine in every case of compound fracture of the skull, from whatever cause, as there have often been found in autopsies pieces of bullets, hairs, etc., which have passed through the fissure at the moment of fracture, and it was possible that to the pressure of these foreign bodies the patient's death was due. The least important part of the brain, from a functional standpoint, is that of the vertex. Statistics, however, vary somewhat as regards the mortality following fractures of this region; however, reports show but a low death rate. It is well understood that the external injury is but a poor index as to the injury within.

Mr. Pick, of St. George's Hospital, London, has shown that from thirteen cases of death following depressed fracture of the skull, nine were due to injuries to the brain, three to extravasation of blood inside the meninges, and one to extra dural clot.

"Surgeons have long been at variance as to which was the most serious—pressure from blood clot or from depressed bone."

Recent statistics prove that the former is the most potent factor for evil. To illustrate, I shall mention here a remarkable case reported by Cline. During a naval battle a sailor was thrown upon the deck in an unconscious condition; later it was observed that he was suffering from a marked depression of the skull. This patient was removed to a hospital, where he lay in an unconscious condition for fourteen months, with regular pulse and respiration, though unable to think or speak.

At the expiration of this period Cline removed the depressed piece of bone at 1 o'clock in the afternoon, and at 4 o'clock—only three hours later—the patient recovered consciousness, sat up in bed and began to speak. Four days later he left his bed, and a few days afterwards was discharged, cured.

In this case the patient was practically dead to the world for fourteen months. This deplorable state was entirely due (as was afterward proven) to the negligence of the attending surgeon in his failure to elevate or remove the depressed bone immediately after the injury.

Samuel S. Cooper also reports a case of gun-shot injury to the right parietal bone, and, according to his statement, immediately upon the removal of the depressed bone the unconscious soldier began to speak.

Dieffenbach operated upon a boy whose head had been run over by a wagon, depressing a portion of the left parietal bone. Immediately upon its removal the boy opened his eyes and recovered speech and consciousness.

German statistics show us that the mortality of fractures of the vault of the skull vary according to location in the following manner: Thus, fractures of the temporal region are the most fatal; second, those of the occipital; third, those of the parietal; and fourth, those of the frontal bones. Nuerney says that, considering all fractures of the vertex, the mortality is about 46 per cent.

Such remarkable cases, as the above have from time immemorial called forth the opinions of the best and most prominent surgeons in the world as to the best time for operation.

"In consideration of the numerous fatalities during the pre-antiseptic era this question was evidently discussed entirely upon its merits." During the present enlightened period we have, however, a more accurate knowledge as regards the remote results of these fractures, and, being able to operate antiseptically, we should consider it an obligation to our patient to operate at once, regardless of past records.

With reference to the remote results following injuries to the head we know that Broca first called attention to the disturbances which are the natural result of these injuries. Busch also elaborated upon the same theme to some extent. Since the time of these writers surgeons from all parts of the civilized world have written exhaustively upon this most important question.

I believe it to be much safer to operate at once upon every case of traumatic depression of the skull, irrespective of the apparent condition of the patient, as this will afford, in many instances, the only chance of recovery.

Just here I am reminded of a very unique case which, some years ago, came under my observation. The patient was a carpenter by occupation, who, during an altercation, received a severe blow on the vertex in an antero-posterior direction, fracturing the skull for some four to six inches. This patient was attended for ten days by two of the leading physicians of the city in which he lived, at the expiration of which time I was asked to see and examine the wound. Upon entering the room the patient, an acquaintance of mine, im-

mediately recognized me, whereupon we at once began a conversation. I found him in a normal state of mind, and suffering apparently no inconvenience from his fracture, with the exception of a slight paralysis of one arm and leg. Upon examination I found that the hair had not been removed from the wound. The skull was found depressed on one side of the fracture for about one-half an inch; the separations of the fragments due to the depression was sufficient to admit of the introduction of a lead pencil, thus permitting an inspection of the surface of the brain. Despite this distressing state of affairs, to the everlasting shame of the medical profession, nothing in the way of operative procedure had been or was instituted for the patient's relief. My suggestion of an immediate operation was disregarded with absolute indifference, and the victim—I say it unhesitatingly—was sacrificed on the altar of criminal negligence.

The consequence of fractures of the vertex have mostly to deal with the fate of the fragments of bone, which, perhaps, may have become separated at the time of the injury. They may become necrosed and separate spontaneously, or may require removal by a subsequent operation. "The extent to which the skull can stand the loss of bone is almost beyond our comprehension." Schneider reports a case in which the patient lost fully one-fifth of the bone of the skull by necrosis following injury. Sweiten relates the case of a beggar woman who lost half of her skull by accident, and carried the bone from house to house on her begging excursions. If the finger was pressed on the dura she screamed aloud, and said she "saw a thousand lights." A remarkable fact with reference to these great losses of the cranial bones is that they are entirely unaccompanied by brain disturbances.

With the above statistics we should hesitate at no time to remove any and all bone from the skull which we have reason to believe will, at any future time, become an offender. The prognosis of fracture of the vault of the skull depends upon the amount of brain injury rather than upon the extent of bone removed.

In the diagnosis of fracture of the vertex, if the fracture is a simple one, the fissure may be felt with the ends of the fingers through the scalp. Should the fracture be compound or depressed, the diagnosis is rendered much easier. The clinical history of the case bears a very important part in making a diagnosis, and should be investigated to its fullest extent where there is cause for doubt.

"It is well known that two factors play an important role with reference to the diagnosis of fractures of the vertex, namely: the shape and extent of the surface involved, and the shape and size of the object with which the fracture is produced in connection with the violence of the compact."

Small cracks and fissures without laceration of the soft parts may, and often do, escape recognition. Fractures of the vault of the skull are due to direct violence. It is also well recognized that at the moment of impact the

cranial bones separate to some extent, as has been demonstrated by the engagement of hairs and other foreign bodies between the bones.

At times simple fracture of the skull is followed by the escape of the cerebro-spinal fluid beneath the scalp, which forms a pulsating tumor, and becomes tense on forced expiration. This is known as the "Pulpy tumor of Pott."

A fissured fracture of the skull is marked by a dark line of blood, which sponging will not remove. Simple fractures of the skull unite by bone, while compound fractures, with loss of bone, unite by fibrous union only. "The dangers of fracture of the skull may be immediate, due to hemorrhage, injury to the brain and septic inflammation; or remote, due to insanity, persistent headache," etc.

Fractures of the inner table of the skull can only be suspected, but should the symptoms be of a grave character an exploratory trephining should at once be instituted.

Some months since I witnessed an operation for the removal of blood clot, due to fracture of the inner table of the skull, with laceration of the vessel in the left lateral sinus. This case afforded no evidence of fracture of the external table. The patient had been struck on the head two days prior to operation with a pick-handle, and had been unconscious and speechless for twelve hours. Upon removal of a piece of bone two inches in extent it was found that the brain was compressed by a blood clot the size of a large hen's egg, which was removed, and the cavity lightly packed with iodoform gauze. The pressure being relieved, the patient soon returned to consciousness, and left the infirmary in a short time, cured.

Simple fracture of the skull, without marked constitutional symptoms, are best treated in the beginning upon the expectant plan, endeavoring to meet and combat the conditions as they arise. However, should grave symptoms at any time appear, they should be met with an exploratory operation without delay. Such an operation often proves to be radical, allowing, as it does, of perfect drainage to the brain.

Notwithstanding the advice of Bergman, that short fissures with slight depressions should be left alone, I am sure you can but agree with me when I say, with our modern means of aseptic surgery, we should without delay proceed to operate upon every case of fracture of the skull accompanied by depression, thus eliminating the possibility of a future epilepsy, which nothing short of an operation would or could relieve.

Of all of the fractures of the skull, those due to gun-shot wounds are of the most serious consequence; however, unless the brain is perforated by the projectile, if an early operation is performed, the prognosis is good.

Bullet wounds of the brain, like those of other organs of the body, should be explored as little as possible, as probing not only breaks down the clot, thus facilitating hemorrhage, but subjects the wound to sepsis as well.

Trephining in gun-shot wounds of the skull should be limited, while, upon the other hand, in extensive comminuted fractures as much of the cranial bones as may become necessary can be removed with impunity.

Trephining the skull is, in itself, a safe operation, as is well illustrated in the celebrated case of the Duke of Nassau, reported by Stohlport Van der Wiel, who trephined his patient twenty-seven times, and had the pleasure of seeing him live for many years afterwards. Statistics demonstrate to us that we have less than 1 per cent. mortality following the employment of the trephine when the brain substance is not injured.

Under all circumstances operations upon the skull, as elsewhere, should be done under the most perfect asepsis. The scalp should be completely shaved, and, if time permits, should be enveloped for some time in a bichloride poultice, after which it is scrubbed with hot water and green soap, or lysol, then thoroughly washed with alcohol, or ether.

Before beginning the incision a rubber tube half an inch in diameter is thrown around the head just above the ears, drawn tightly, and clamped with hemostatic forceps, thus keeping in perfect control any hemorrhage which might occur.

When the operation is completed the wound is dressed with a dry sterile dressing and the patient returned to his bed, where he is left in perfect quietude until restored to health.

XXXIX. SOME NASAL REFLEXES.

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The motive that prompts this brief paper is to recall attention to the nose as a factor in the etiology of ocular troubles, and to report a few cases in point of illustration.

Correct treatment of pathological conditions generally cannot be properly and promptly instituted until the cause has been discovered. Especially is this true in regard to so sensitive and delicately constructed an organ as the eye. It is no new story that pathological conditions of the eye are often dependent on abnormal conditions in the nose, and it is just for this reason and on account of the disturbance of the important functions of the organs involved and the inconvenience and suffering incurred that iteration and reiteration of a twice-told tale is indulged or justified.

When we take into consideration the intimate association, anatomical and physiological, of the nose and eyes (first, by continuity of the nasal and ocular

mucous membranes; second, through the lymphatics, nerve and blood supply), we are not surprised to note that they frequently sustain the relation of cause and effect in pathology. This paper will have nothing to do with the pathological conditions of the eye resulting from the passage of morbific material from the nose directly through the nasal duct, but will be confined to the sympathetic or reflex ocular conditions produced by mechanical or pressure effects, dependent on hypertrophies or deformities of the nose. Some of the most common sympathetic or reflex ocular troubles of nasal origin are: Asthenopia, contraction of the field of vision, lacrymation, photophobia, conjunctivitis and epiphora; others less common are blephorospasm, keratitis, glaucoma, mydriasis, atrophy of the optic nerve, spasm of accommodation and strabismus. That these cases will often not yield to treatment, or will frequently recur till the nasal trouble is corrected, offers evidence of nasal origin.

The first case I wish to report is one of recurrent keratitis, following traumatic keratitis, the recurrence being due to an enlarged middle turbinated body anteriorly pressing against the septum.

CASE 1. Mrs. T. J. B., September 17, 1899, while handling a pet chicken, was pecked on the right cornea, slightly below and to the nasal side of the pupil. The next day when I saw the eye all the characteristic symptoms and appearances of keratitis were present, viz: cornea hazy and hypersensitive to the touch, ciliary redness, contracted pupil, profuse lacrymation, great pain, photophobia, etc.

Treatment. Ordered calomel purge, milk diet, darkened room and rest. Locally, applied iced cloths at first, later hot fomentations and instilled collyrium of cocaine, aqua camphor, tannin, boric acid and glycerine. In a short time the symptoms abated, and in a few days the patient was convalescent. February 8, 1900, without apparent cause, the keratitis suddenly recurred in the injured eye. The patient made a good recovery again under the same treatment. About March 4 keratitis made its second recurrence, and in my absence the patient consulted Dr. Cheatham. After learning the history of the case he suspected the nose as the origin of the recurrent attacks of keratitis, and discovered an enlarged middle turbinated body on side of injured eye, pressing anteriorly against the septum. He cauterized the turbinated body with glacial acetic acid, and ordered atropine instilled into the eye, along with hygienic treatment, and the patient has not been troubled since, though the intervening time has not been sufficient to test the permanancy of the cure. I am rather inclined to think that more radical measures should have been employed in dealing with the turbinoid; either the use of the galvano cautery or partial removal.

CASE 2. J. D., age 15, consulted me August 31, 1897, on account of his eyes, preparatory to entering school. He complained of blurred vision, with itching, smarting lids. Frontal pain, loss of appetite and want of power of mental application, or aprosexia, were all well marked. In fact, he lost inter-

est in out-door sports, would go to his room without supper, complaining of headache. My brother, of New York, who pays some attention to the eyes, happened to be at home on his vacation, and I had him to see this young man with me. He read 20-15 on Snellen's test types, had no error of refraction, and the ophthalmoscope revealed nothing abnormal. Tonic and hygienic treatment was prescribed, in conjunction with local applications of yellow oxide mercury ointment and a collyrium of boric acid, tannin, glycerine and aqua camphor, and patient advised to avoid studying at night. The treatment instituted gave only temporary relief, the symptoms returning on mitigation of treatment. On October 25 I began local applications to the nose, which proved beneficial, but still not entirely satisfactory. November 16 I removed a section of the left lower turbinated body and turbinal, which was pressing against the septum. After this operation the patient's recovery was prompt and complete, and his development and growth, which had been slow up to this period, improved rapidly.

The result of the treatment in these cases lends to the argument that pressure effects in the nose often prove a predominant factor in the production of not only ocular troubles, but others more remote. Of the latter class asthma is a pertinent example; in fact, so familiar, that to report an illustrative case would imply a reflection on the intelligence of this audience. Other remote nasal reflexes are megrim, nightmare, nervous cough, vertigo, etc., and are too well known to you to make it necessary to report illustrative cases. Nor shall I multiply the foregoing report of cases in order to further renew your acquaintance with the long and well-established fact that mechanical or pressure effects in the nose are a fertile source of ocular reflex neuroses. The two cases reported furnish an ample text to evoke a free discussion, which is the aim and end of this paper.

XL. SCARLET FEVER.

LYMAN BEECHER TODD, M. D.,

LEXINGTON, KY.

The skillful treatment and successful management of scarlet fever is one of the most notable and gratifying achievements of modern medical science. The manner in which the healing art is keeping abreast with the general advance of invention and discovery constitutes one of the most satisfactory aspects of this century's wonderful progress.

Medical science is rapidly changing from the empirical to an exact science, as disease after disease yields before the definite lines of treatment for both

cure and prevention, that has been ascertained in long and patient research by numberless skilled investigators, and through the therapeutical application of scientific processes discovered in other fields.

Scarlet fever, like some other diseases which were once classed as absolutely fatal in a fearful degree, has thus been largely robbed of its terrors in the household, and the list is steadily increasing. It surely is gratifying to believe that science will be enabled to vanquish virulent epidemics of scarlet fever, if not before this century closes, at least while the twentieth is still young; and that this disease will be brought under as certain subjection as smallpox has been, as perhaps to be made harmless when epidemics occur, as has recently been at the Orphans' Home in Lexington.

I have mentioned successful management of scarlet fever, for with advance of medical science its scope has broadened, and it has grown beyond the circumscribed limits of what was once held to be its legitimate field, until it is now recognized as including the domains of general sanitation, as we know in the improved methods of sewerage, ventilation, and legally authorized and rigidly enforced quarantine, and guardianship of institutions of learning, private and public schools, seminaries and colleges. While learned scientists admit that the bacteria of scarlet fever are unknown, the all-round, the well qualified, well-read physicians know from observation and from experience that certain morbid and poisonous conditions exist, and that streptococci are found in the skin, in the blood sometimes, and in the organs of fatal cases.

The renal changes are most important (careful examination of the urine should be made daily), and have been thoroughly studied by Coats, Klebs, Wagner and others. Certain vagaries of scarlet fever are entirely unaccountable, which, however, appear as pointers in the care and treatment of this dreaded disease, viz: that frequently from mild cases of scarlatina very severe and often fatal cases of scarlet fever originate, and also that many persons who have been exposed to violent and fatal cases have entirely escaped.

A case of the latter may be interesting. Monday morning, August 1, 1893, Miss Van F., of Harrodsburg, who was visiting Mrs. B., at Woodland, was seen; age 22 years; medium height and weight; her previous health good. She had complained since Saturday, being in bed latter part of the day, as she was the next day, and until I saw her. She then was suffering with severe and unremitting headache, pain in entire back and limbs, inflamed throat, temperature 105 degrees, pulse 130, restless and sleepless, tongue dry and furred. Found her entire person covered with bright scarlet eruption, as I was informed it had been since Saturday afternoon. She was, in language non-professional nor classical, red as a rose and hot as a stove. In reply to Mrs. B.'s anxious question, "Doctor, what is the matter with Miss Van F.?" I said, "Scarlet fever." Thereupon, with unconcealed agitation and alarm, she said that her daughter Maud, age 12 years, had been sleeping with her, and her younger sister of 10 had been in the room with her all the time, constantly exposed to the disease, waiting upon her.

. I was hurriedly called to see her at 5 o'clock in afternoon of same day. Delirious; pulse more rapid and bounding; temperature 106 1-8; rapid breathing; extremely restless, with anxious expression; had complained with head and throat; bowels unmoved. Powder in capsule given in forenoon; calomel, 10 grains; Dover's powder, 6 grains; ordered to be given immediately full dose of castor oil. Attention was given to throat, internally and externally; hot drinks; perfect rest and quiet. At an early visit next morning I was gratified to find her more comfortable and her condition improved. After several free and bilious movements from bowels, and her kidneys having acted well, she slept five hours. The eruption was characteristic; throat still inflamed; slightly ulcerated; pulse 100; temperature 101 1-4; respiration less hurried; no delirium. A telegram of alarm brought from Harrodsburg an unmarried sister, two years younger, who never had scarlet fever. During four succeeding days the violent symptoms gradually abated. The case was treated with usually prescribed antiphlogistics. (I use this word obviously to avoid burdening this paper with many and valuable prescriptions used in the treatment of scarlet fever, abundantly found in text books and medical journals, with which the well-informed practitioner is familiar, and especially as each individual case is a law unto itself, to be treated rationally—that is, as symptoms are presented and as conditions exist.)

Strict attention was paid to varying conditions of throat. Listerine employed as restorative remedy for diseased mucous surface, and with advantage, as well as attention continued for weeks to condition of bowels and kidneys. On the eighth day no eruption was visible. Desquamation, the time when contagion is most dreaded, beginning about the seventh day, in parts where eruption was first observed, proceeded, and on ninth day portions of cuticle were thrown off, and continued, extending over entire person. Without serious interruption she made good recovery. Hypophosphites given with benefit for debility and nervous exhaustion.

A few points of interest presented: Since recovery of patient it has been ascertained beyond doubt that one year and two months previous to her attack a child died in that house of scarlet fever, whose family removed to Cincinnati; that the house had been vacant for six months, but had been carefully cleaned and thoroughly ventilated before occupancy, showing how the poison of scarlet fever may linger in a place; that so little medicine was actually required to successfully combat disease, but give nature a living chance; that the two children who had been from the very outset of patient's attack exposed to the disease, the grown sister, who never had scarlet fever, and nursed her, and others who were directly and continuously exposed, had securely escaped, and by neither was the disease communicated to others.

My thus making mention of this interesting and typical case of scarlet fever, and remarkable and gratifying exemption from contagion, justifies my emphasizing the necessity—indeed, the sacred and bounden duty—of the faithful physician, as guardian of the public health, as well as of families com-

mitted to his care, of giving careful, continuous, painstaking attention to even very mild cases of scarlet fever, because, first, from such cases severe and fatal ones have originated, and may at any time occur; and when cases considered mild are neglected, especially in convalescence, the patient, either young or adult, may, by exposure, contract cold, or indulge in improper food, which would cause serious consequences and complications, as inflammation of eyes, impairment of health, sight, hearing, and destruction of life by disease of kidneys, etc.

The period of caution is considered to be six weeks from commencement of the disease, provided desquamation has ceased and mucous membranes are healthy. Here let me impress the importance of the truth that this period of caution cannot be too closely watched nor too rigidly enforced, because upon its observance the family is made safe, and greater protection of the public is secured. Here, indeed, the good doctor must play the role of the autocrat. Probably at the end of three weeks the patient, being lively and apparently well, the very inconsiderate mother will say, "Doctor, cannot Mary and Eva go back to school? They are losing so much valuable time, and getting so behind in their classes. They seem so well; they had scarlet fever in so mild a form. You know that Eva hardly went to bed at all." The physician here and now must put his foot firmly down and answer with authority: "No, indeed, madam; by all means, no. She cannot go to school for six weeks from the beginning of her attack. For while we rejoice that your little ones are spared, would you have them now go back where many of their little school mates and friends might take scarlet fever from yours, and some of them would probably die? Remember how this poison clings to clothes."

Trades people, dress-makers, become impatient, and plead that their business will suffer; that their trade will leave them. Here also the doctor must be inexorable; because, while he may hear that money is in the balance of the scale, he justly and faithfully must see in the other safety, health and happiness. In scarlet fever, which so long has been a terror to households and neighborhoods, remember that isolation, seclusion, perfectly enforced, is absolutely necessary, and that every known, reasonable and conceivable precaution against contagion and conveyance of this disease is of inestimable importance. There are numerous and well authenticated instances of scarlet fever having been conveyed to great distances, and contagion, after long periods of time, by contact with articles of clothing or objects that had been used by patients with scarlet fever. This fact is very familiar to all, and I shall mention only one case of transmission of scarlet fever, which was recorded by an eminent physician of Boston, who had personal knowledge of the occurrence.

In 1846 a boy of eight years, the brother of the narrator's wife, was taken down with scarlet fever and died. One of the principal amusements of his illness had been looking over a large picture book. After his death this, with several other useful playthings, was packed away in a trunk. Twenty-six years later, in 1872, the sister-in-law of the editor took this trunk with her on a

journey which she made to England, where she was at that time residing. The trunk was opened the second day after its arrival, and the picture book taken out and presented to the editor's two-year-old son. During the next fortnight the little fellow was attacked with scarlet fever. It was a wonder to the doctors, who were called in consultation, how the disease had been contracted, as there had been no scarlet fever in the town for years. At last it occurred to the editor that the picture book might have transmitted the disease, and the medical men in attendance, on being told the facts connected with it, agreed that it had retained the poison for twenty-six years, and had communicated it to the child.

As it is my purpose that this paper be entirely practical and helpful, I could not regard it complete without expressing the importance (yes, the necessity) of judicious selection and use of valuable disinfectants. Long before people understood the manner in which contagious and infectious diseases were communicated from one person to another, the importance had been fully established of a thorough disinfection of the patient's clothing and the room which he had occupied. But the agents formerly employed for this purpose, sulphur included, are now believed to be wholly useless. At present only chemical agents are recognized as of value in completely destroying the germs of disease and preventing their spread. Among the most reliable the formaldehyde, carbolic acid, corrosive sublimate and chloride of lime, and it is at once apparent to any one at all familiar with these chemicals that their employment is necessarily restricted, as all of them are irritant poisons when used in excess. Chloride of lime is perhaps the one which may be said to deserve the greatest commendation, on account of its cheapness and the comparative little danger attending its use. German authorities advocate the employment of steam and heat, justly maintaining that in these we have cheap and efficient agents, which are highly penetrable, and at the same time are dangerous or injurious to but few household articles.

The following rules may be said to conform to the latest approved methods of disinfection:

1. All fabrics which will not be injured in the process must be boiled in water for at least six hours.

2. Fabrics which will not stand this treatment are to be subjected to the action of dry heat for a much longer time.

3. Furniture, etc., may be treated with a 14 per cent. solution of carbolic acid.

4. Articles which have been in actual use by patients must be burned.

5. Walls of the room must be rubbed down with bread, which must afterwards be burned.

6. The sputa and excrements of the patients must be at once treated with chloride of lime.

It is evident that upon thoroughness of disinfection depends not only the private, but the public, welfare.

KENTUCKY STATE MEDICAL SOCIETY.

MINUTES OF THE FORTY-FIFTH ANNUAL MEETING, HELD AT GEORGETOWN, KY., MAY 9, 10, AND 11, 1900.

FIRST DAY—*Morning Session.*

The Society convened in the Georgetown College, and was called to order at 10 A. M. by the President, Dr. William Bailey, of Louisville.

Prayer was offered by the Rev. W. O. Shewmaker, of Georgetown.

Hon. John Macklin Stevenson, of Georgetown, delivered an eloquent address of welcome, which was responded to in a befitting manner by Dr. James B. Bullitt, of Louisville.

The next thing in order was the presentation of a gavel from the family of Dr. William Loftus Sutton, first President of the Kentucky State Medical Society. The speech presenting this gavel was made by Dr. John A. Lewis, of Georgetown, and at the conclusion of the remarks of Dr. Lewis, the President said: "I feel that it would not be fitting to accept this gavel without some response. It is, therefore, with great pleasure that I receive, in behalf of the Kentucky State Medical Society, this gavel, presented by the family of Dr. Sutton, coming, as it does, made of the wood from the desk where much of his work was done. In behalf of the Society I extend its thanks to the family of Dr. Sutton for this presentation, and to express the hope that it will be used for the control of this Society in the spirit of him who was its first President, and that it shall never be wielded by unworthy hands, or other than for the good of man." (Applause.)

The President: The next thing in order is the report of the Committee of Arrangements.

Dr. John A. Lewis, Chairman of this committee, made a report, saying that the Georgetown College had been selected as the place for holding the sessions of the society; that the annual address of the President would be delivered in the chapel of the Georgetown College at 8:30 P. M., on Wednesday, May 9th, to be followed by an address by Dr. H. A. Cottell, of Louisville. Badges or buttons would be furnished members after registration. On the evening of Thursday the local medical profession and citizens of Georgetown would tender a banquet to the Society and its guests.

The committee offered the program as its report.

On motion the report was adopted.

The following report of the Treasurer was read:

TREASURER'S REPORT.

To the President and Gentlemen of the Kentucky State Medical Society:

Your Treasurer has pleasure in making his annual report for the year ending May 1, 1900.

Some of the members became restless regarding the Volume of Transactions, and two demanded that the amount of their dues for the current year be refunded. Their demand was promptly complied with, and their names do not appear on our roster. I am pleased to say that the members, as a rule, have been more prompt during the past year in the payment of their dues.

There has been complaint from the membership that some had been suspended for non-payment of dues and were afterward admitted as *new members* without liquidating the old indebtedness. The Committee on Credentials should look into this carefully regarding all applications.

Following is our statement:

RECEIPTS.

Balance at last report	$20 15	
Received at Louisville meeting	885 00	
Dues received since Louisville meeting	216 85	
		$1,122 00

DISBURSEMENTS.

John P. Morton & Co	$825 92	
Geo. E. Malsbury, Stenographer	48 68	
Dr. Steele Bailey, Secretary, salary	100 00	
Dr. Steele Bailey, Secretary, expenses	33 00	
Dues returned to Dr. D. D. Cox	3 00	
Dues returned to Dr. G. M. Center	3 00	
Collection of drafts	5 00	
Expenses for Treasurer—Printing, stationary, postage and revenue stamps	23 00	
		$1,042 30
Balance in Treasury		$79 00

Respectfully submitted,

CHAS. W. AITKIN, *Treasurer.*

On motion the report was adopted.

The Permanent Secretary, Dr. Bailey, read his report, as follows:

REPORT OF THE PERMANENT SECRETARY.

Gentlemen of the Kentucky State Medical Society:

It gives me very great pleasure to greet you and to make this my brief report. This is done in compliance with honorable custom, a custom which may be defined, when applied to me, as a "constitutional habit," for I have appeared before you to report the acts and doings of this Society for sixteen consecutive years; years which have swept by as fast as goes the weaver's shuttle. The thought most suggestive to me, when I had written this sentence, was how changed, not only the roster, but the personnel of the Society, since my first report was made in 1886. How many who were then in active service, always to the front in the upbuilding of the Society, who knew not how to retrograde, who did everything to stimulate advancement and growth of scientific medicine, who were proud of their Society, now, like Asa, sleep with their fathers! But the good work goes on; their deeds have been emulated.

In 1885 there were but 89 regular members upon the list. Now we have more than 500. This verity is convincing that we are in the period of steady growth and enthusiasm, and the meed of favor has been secured only by united, earnest efforts to meet the demands of the times. Our requirements for membership are not, and have never been, meager. We admit every worthy and well-qualified practitioner, but they are sufficient to prevent the introduction into our ranks of those weighed in the balance and found wanting. We now have on hand and have always had "good timber" material in every member fit for the Presidency. Besides, as a scientific body, we have been ever at the "Pocific slope." Bickerings of no kind, little meannesses, so far as I know, have never appeared to pervade and disturb the warp and woof of our beings. The office of Censor has been a sinecure. It has emoluments, to be sure, in the way of honor, but no serious business to ruffle the incumbent's equanimity, no *billet doux* has he had to write or to answer. For all of which we give thanks. Each member, then, of the Kentucky State Medical Society may congratulate himself as belonging to an able, progressive and noble Society, one in which the spirit of excellence permeates every thought and action, and membership should be to each an honor, an inspiration, a source of knowledge and a permanent benefit.

There have been reported to the Secretary, though there may be others, the names of two members who have died during the past year: Dr. Harry Y. Cowan, of Danville, a frequent and able contributor to the proceedings of this Society, and Dr. George Beeler, of Clinton, who was President of this Society at its meeting held in 1891. He was a most companionable, agreeable man, a skillful physician, who died in the ripeness of years, beloved by all his associates.

The Transactions, Vol. VII., new series, whose delivery was delayed because of unavoidable difficulties, has been placed in the hands of the members. If any member has failed to receive his copy the Secretary will be pleased to hear from him, and to communicate with the publishers concerning the matter.

The volume has been sent in exchange to thirty-seven different State Medical Societies, and to the following libraries: Library of Medical Department, University of California, San Francisco; Students' Library of Rush Medical College, Chicago; St. Louis Library Association; New York State Library; Cleveland Medical Library, Cleveland, Ohio; Medical Library of McGill University, Montreal, Canada; Mississippi Valley Medical Association Library, and Bristol Medical Journal, Bristol, England.

The following gentlemen have had credentials placed in their hands to represent this Society at the Pharmacopeial Convention, which meets in Philadelphia during the month of May, namely: Leon L. Solomon, Louisville; William Bailey, Louisville, and Philip F. Barbour, Louisville.

The delegate who ably represented the Society in Washington, May 1-2, at the meeting of the National Legislative Committee of the American Medical Association, was Dr. Joseph M. Mathews, of Louisville, who will report progress during this session.

The program is now spread before you. It is first-class in every particular, containing more than fifty well-written papers, all of which will be read and discussed in your hearing.

With my best wishes for the entire success of this, the Forty-fifth Annual Meeting of the Kentucky State Medical Society, I am, faithfully yours,

(Signed) STEELE BAILEY.

On motion of Dr. Frank the report was adopted.

The President called for the report of the Committee on Publication.

In the absence of the Chairman of this committee, Dr. Louis Frank said: "I was requested by Dr. Bullock, the Chairman of the Committee on Publication, to say that the committee has only to offer the annual volume of transactions as its work, and to further state that if any apology be necessary for the delay in publication it was not the fault of the committee."

The President: You have heard the statement made in behalf of the Committee on Publication. It is unfortunate that we have only just received copies of last year's proceedings. It seems to me the Committee on Publication should be able to issue the proceedings in book form in three or four months after the meeting. In this case I believe the publishers have assumed the reponsibility for the delay, and not the Committee on Publication. In looking out for publishers this year, it would be well for the new Publication Committee to make some arrangement by which the transactions can be issued much earlier.

On motion the report was adopted.

The President called for the report of the Committee on Topics for Discussion, and in the absence of the Chairman, Dr. Cartledge, the report was postponed.

Dr. James B. Bullitt: I have a matter which I desire to present briefly to the Society. It is proposed, in connection with the meeting of the American Medical Association, at Atlantic City, June 5-8, to have a pathological exhibit, and it is the desire to give State representation to this exhibit. The President was good enough to appoint me unofficially to agitate this question, and to see what could be done in behalf of the Kentucky State Medical Society. So far very little has been done, but I have the hope that at this meeting we will be able to find gentlemen who have pathological specimens of the proper character, and so preserved that we can take part in this exhibit. I would suggest that the President appoint two additional members on the committee, empowering the committee to make a small disbursement in handling the specimens. If the Society does not like to undertake that small expense, it will be stood by the individuals themselves. I move you, sir, that the President appoint two additional members on this committee, and, if necessary, to call upon the Treasurer of the Society for any small expense which may be incurred.

Seconded and carried.

The President: I will appoint as additional members on this committee Drs. Louis Frank and A. T. McCormack.

On motion the society then adjourned until 2 P. M.

FIRST DAY—*Afternoon Session.*

The Society reassembled at 2 P. M., and was called to order by the President.

Dr. Urban V. Williams, of Frankfort, read a paper entitled "Nephritis Considered as a Conventionalism."

Dr. John G. Cecil, of Louisville, read a paper on "Renal Insufficiency."

Dr. J. A. Humphrey, of Henderson, followed with a contribution on "Nephritis: Its Frequency and the Importance of Its Early Diagnosis."

These papers were discussed by Drs. Frank, Humphrey and Williams.

Dr. Henry E. Tuley, of Louisville, read a paper entitled "What is the Significance of a Febrile Puerperium?"

Dr. Isaac J. Townes, of Beech Grove, read a paper entitled "Puerperal Fever, With Report of Seven Cases."

The discussion on these papers was opened by Dr. McChord, and continued by Drs. Gossett, Lapsley, Atkinson and Simmons.

Dr. James H. Letcher, of Henderson, read a paper on "The Importance of Early Diagnosis, and the Complete Removal of Cancer of the Female Breast," which was discussed by Dr. Atkinson.

Dr. Henry Plummer, of Harrodsburg, followed with a paper on "Syphilis."

This paper was discussed by Drs. Yager, Bullitt, and, in closing, by the essayist.

Dr. A. H. Barkley, of Lexington, read a paper on "Litholopaxy, With Report of Cases."

Dr. A. T. McCormack, of Bowling Green, read a paper on "Some Country Surgery."

Dr. Adolph Pfingst, of Louisville, read a paper on "Inflammation of the Middle Ear in Infants and Children."

On motion the Society adjourned until 8:30 P. M.

FIRST DAY—*Evening Session.*

The Society reassembled at 8:30 P. M., and was called to order by the First Vice-President, Dr. James H. Letcher.

Dr. William Bailey, of Louisville, as President, then delivered his annual address.

Dr. H. A. Cottell, of Louisville, followed with a popular address, after which the Society adjourned until Thursday morning at 9 o'clock.

SECOND DAY—*Morning Session.*

The Society met at 9 A. M., and was called to order by the President.

The Secretary read a communication from Mr. Pressler, a member of the Kentucky State Pharmaceutical Association, who, with Mr. Collins and Mr. Henderson, of Georgetown, were appointed at the meeting of their Association

held in Louisville, in 1899, to appear before the Kentucky State Medical Society to read a short paper on the subject of the national formulary, to consume not more than ten minutes.

Dr. McCormack: I move that we hear these gentlemen on the subject mentioned whenever convenient. Seconded and carried.

The Secretary: I have a communication from the President of the American Medical Association, Dr. W. W. Keen, who asks that the Kentucky State Medical Society take some action relative to a bill which is now pending in Congress on the subject of anti-vivisection. Dr. Keen says that the bill is in great peril, and that action is required on the part of every State medical society in the United States, as well as local societies, and he believes by such united action we may succeed in preventing the passage of this anti-vivisection bill.

The President: What will you do with the communication of Dr. Keen? It is a matter of great importance, and Dr. Keen is anxious that every society in the country shall bring its aid to bear upon Congress. It is a matter which concerns most of us in connection with the work that is being done at the present day.

Dr. Henry E. Tuley: I move that a committee be appointed by the chair to formulate resolutions, and that they be presented to our Congressmen and Senators by the Secretary. Seconded and carried.

The President: The Southern Kentucky Medical Association has a membership of over three hundred, and I would like the President and Secretary to recommend us to send delegates to the meeting of the American Medical Association.

Other societies were added to the list to send delegates to the meeting of the American Medical Association.

Dr. Ap Morgan Vance, of Louisville, read a paper entitled "Surgical Fanaticism," which was discussed by Drs. Slaton, Gilmer, Scott, Sherill, Tuley, Bullitt, Williams, and the discussion closed by Dr. Vance.

The President appointed on the committee with reference to anti-vivisection Drs. J. G. Cecil, Chairman; U. V. Williams, of Frankfort, and L. L. Robertson, of Middlesboro.

Dr. Benjamin F. Parrish, of Midway, read a paper on "Club Foot," which was discussed by Dr. Schachner.

Dr. A. G. Blincoe, of Bardstown, read a paper on "Some Facts, Theories and Fallacies in Regard to Eye Strain."

Dr. Dudley S. Reynolds, of Louisville, read a paper on "Visual Perimetry."

Dr. Thomas Hunt Stucky, of Louisville, read a paper on "Diabetes Mellitus: Its Treatment, With Report of Cases."

The Secretary at this juncture announced the members of the Nominating Committee.

Dr. George Edwin Davis, of Lawrenceburg, read a paper entitled "A Clinical Study of the Liver as a Factor in Elimination, Direct and Indirect," which was discussed by Drs. Reynolds, Bate, Stucky, and, in closing, by the essayist.

Dr. I. N. Bloom, of Louisville, read a paper on "An X-Ray Burn," and presented the patient.

Dr. August Schachner, of Louisville, read a paper entitled "The Transplantation of Tendons for the Correction of Paralytic Deformities."

Dr. Frank L. Lapsley, of Paris, read a paper on "Alkaloidal Medication: What is It, and What are Some of Its Advantages?"

Dr. James B. Bullitt, of Louisville, called attention to the following method for the preservation of pathological specimens:

Kaiserling Method of Preservation of Pathological Specimens.

The specimen should *not* be thoroughly washed in water, thereby removing the blood, as the color depends upon the preservation of the blood in the tissues.

The specimen is first placed in solution No. 1, in which it is allowed to remain for three to five days. It is then transferred to solution No. 2, in which it remains for three to five hours. It is then placed in solution No. 3 for one hour, and finally preserved permanently in solution No. 4.

Specimens must be kept in a dark room, or case, as daylight tends to cause bleaching.

SOLUTIONS.

No. 1—Formalin, 640 c.c.; water, 3,200 c.c.; potas. nitras., 48 c.c.; potas. acetas., 96 c.c..

No. 2—Alcohol, 80 per cent.

No. 3—Commercial alcohol, 96 per cent.

No. 4—Potas. acetas., 300 c.c.; glycerin, 600 c.c.; water, 3,000 c.c.

On motion the Society adjourned until 2 P. M.

SECOND DAY—*Afternoon Session.*

The Society reassembled at 2 P. M., and was called to order by the President.

Dr. John T. Gilmer, of Louisville, read a paper on "Gonorrhea and Some of Its Complications in the Male," which was discussed by Drs. Gossett, Hibbitt, and the discussion closed by Dr. Gilmer.

Dr. A. M. Cartledge, of Louisville, followed with a paper on "The Dangers of Operation for Appendicitis After the Fourth Day and Before the Quiescent Period."

Dr. Arch Dixon, of Henderson, contributed a paper on "The Importance of Early Diagnosis in Appendicitis," which was read by Dr. Quinn, in the absence of the author.

Dr. W. A. Quinn, of Henderson, reported "Seven Operative Cases of Appendicitis, With Remarks."

These papers were discussed by Drs. Sherrill, Schachner, Jenkins, Sim-

mons, Yager, Humphrey, Pratt, Carpenter, and the discussion closed by Dr. Cartledge.

Several applications for membership were presented during the sessions, acted upon, and the applicants declared duly elected members.

Dr. J. G. Carpenter, of Stanford, read a paper on "Ectopic Gestation."

The paper was discussed by Dr. A. T. McCormack, who submitted a printed discussion, and asked that his remarks be incorporated in the Transactions.

This request was referred to the Publication Committee.

Dr. Philip F. Barbour, of Louisville, read a paper entitled "Mucous Disease."

Dr. W. O. Roberts, of Louisville, read a paper on "Hernia of the Bladder."

Dr. Walker B. Gossett, of Louisville, contributed a paper on "The Early and Non-Surgical Treatment of the Diseases of Women."

Mr. H. W. Pressler, representing the Kentucky State Pharmaceutical Association, then addressed the Society on the national formulary, as follows:

To the President and Members of the Kentucky State Medical Society:

Gentlemen—At the last meeting of the Kentucky Pharmaceutical Association, Messrs. Collins and Henderson, of Georgetown, and myself were appointed a committee to present to you some of the national formulary preparations, and to call your attention to the formulary preparations, and urge you to prescribe them instead of the different proprietary preparations.

All of you have met the detail man of the different pharmaceutical manufacturers, and have seen their products. If you will notice many of their preparations are national formulary preparations, but under different names. The many proprietary preparations, while they have the formula printed on the label, do not, in many cases, contain what is claimed for them. The preparations of the National Formulary are of known composition, and the physician knows exactly what remedies he is prescribing. Then, the cost to the patient is much less, which is a great consideration.

It is claimed by some that the pharmacist cannot make these preparations as well and as accurately as the large manufacturer, but this is a mistake, for in our pharmacies there is every facility for making these preparations, and probably with far more care than in these large establishments, where many of the processes are put into the hands of uneducated and inexperienced persons, who do not work understandingly.

If you have sufficient confidence in a pharmacist to send him your prescriptions to be prepared, you certainly must have confidence in his preparations; then why not have the same confidence in the National Formulary preparations he makes? They are prepared with the same care as the official preparations or your prescriptions; also the same care is exercised in the selection of the crude drugs, and the result must certainly be a reliable preparation, and justly worthy of your confidence.

Now, gentlemen, do look at this matter in the right light, and give us pharmacists the benefit of your confidence, and always prescribe the National Formulary and benefit yourself, the pharmacist, and, above all, your patient.

Respectfully submitted,

H. W. Pressler, *Chairman Committee.*

Dr. David M. Gaddie, of Hodgenville, read a paper entitled "Cretinism, With Report of a Case," which was read by Dr. R. C. McChord, in the absence of the author.

Dr. R. Alexander Bate, of Louisville, read a paper on "The Rational Therapeutics of Typhoid Fever."

Dr. Curran Pope, of Louisville, contributed a paper on "Some Reflections: Pessimistic and Optimistic," after which the Society, on motion, adjourned until Friday morning at 9 o'clock.

THIRD DAY—*Morning Session.*

The Society met at 9 A. M., and was called to order by the President.

The first thing in order was the reading of the report of the Nominating Committee, which was as follows:

President—Dr. James H. Letcher, Henderson.
First Vice-President—Dr. George E. Davis, Lawrenceburg.
Second Vice-President—Dr. George M. Reddish, Somerset.
Permanent Secretary—Dr. Steele Bailey, Stanford.
Treasurer—Dr. Charles W. Aitkin, Flemingsburg.
Librarian—Dr. F. L. Lapsley, Paris.

On motion of Dr. Tuley, the Secretary was instructed to cast the unanimous vote of the Society for the various candidates recommended, which he did, and they were declared elected as officers for the ensuing year.

The next topic for consideration was the place of meeting, and after considerable discussion Louisville was selected as the place for holding the next meeting of the Society.

Dr. Louis Frank was selected as Chairman of the Committee of Arrangements.

Dr. George E. Davis: I regret exceedingly to delay the regular business of the Society in presenting a matter of a personal nature. The question I desire to submit for consideration is one which concerns the profession generally and the public. Therefore, I rise to a question of personal privilege. I appeal to the Society for its material support. On February 20, 1899, through the advice of the County Attorney, I had a Mr. Cassidy arrested for selling electric belts and patent nostrums. He was acquitted on the second trial, and subsequently brought civil suit against me for $5,000 damages. There is a verdict now against me for $500 pending before the Court of Appeals, and I respectfully ask that some action be taken by this Society, because I feel that in having Mr. Cassidy arrested I acted in behalf of the Society and medical ethics, in that I sought to protect the profession as well as the unsuspecting public. Therefore, if the Society does not come to my rescue or aid in an attempt to suppress quackery, we have no encouragement whatever to oust these fellows from the State.

Dr. A. T. McCormack: This matter can hardly be dismissed without action by the Society, and I move that a committee of three be appointed to consider this matter, with power to act. It will have to be done between this and the next annual meeting. The report of the committee can be made at our next meeting.

Seconded.

The President: It ought to be clearly understood as to what is to be the extent of this consideration. Does this motion imply that the committee is to furnish the material aid to Dr. Davis, which I think he is entitled to, or does it give this committee a right to make an appropriation from the funds of this Society for this purpose? I think the whole question might be referred to a committee, but it is of doubtful propriety to give the committee the right to determine for the Society a question of so much importance as this. I would like to hear further from the mover as to what he means.

Dr. McCormack: It is almost impossible for the Society as a whole to determine the merits of this question. The three members to be selected by the Society can investigate the merits of the matter so much better than we can publicly, and I am satisfied from my own investigations in the matter that this Society should take steps and give financial aid to the Doctor in the prosecution of his case. This committee should be empowered to do whatever is necessary to help Dr. Davis. If financial aid is necessary, and the Society has not sufficient funds to help him, we can solicit aid from the different members. No physician within my hearing would be unwilling to aid Dr. Davis in this case, and I am satisfied that when this committee is appointed it can assist him materially.

Dr. U. V. Williams, of Frankfort: Being in a contiguous county, and similarly affected, and sympathizing with Dr. Davis, and realizing that the State Board of Health has power, and that the amount of money formerly at the disposal of this honorable body has been largely increased, and with the expectation that such matters as this should be adjudicated, I desire to move, as an amendment, that the co-operation and assistance of the State Board of Health be added to this committee. Seconded.

Dr. McCormack: I accept the amendment.

Dr. J. G. Carpenter: Dr. Davis was acting in the interests of scientific medicine and surgery. He was acting for the welfare of the profession of his county and of America. He was acting for the welfare of the State Board of Health, and it is wrong for him to be the victim of prosecution when he is acting for the welfare of the Commonwealth of Kentucky, and to let him suffer financially, as well as from the annoyance of the prosecution, would be an outrage. This Society and the State Board of Health should render him material aid. If there are no funds in the Society with which to do this, it is incumbent upon each member to go down into his pocket and assist Dr. Davis in this matter.

The President: If the Chair may be permitted to discuss this question, I will say that I think the profession will stand by Dr. Davis. While the funds of the State Board of Health have been increased, yet nothing can be relied upon from this source, because the demands made upon us, on account of smallpox prevailing throughout the State, have been so great that we are already overwhelmed, and the probabilities are that an additional amount will not meet the emergency; so I do not think anything can be relied upon from the State Board of Health towards this cause. It seems to me that this committee, when it is appointed, might solicit from the individual members of the profession in the State, whether members of this Society or not, and meet any demand that may be made upon Dr. Davis. That is my view of the case.

Dr. J. G. Carpenter: I wish to start the fund by subscribing $10.00 to assist Dr. Davis in this matter. I hope the Society will take it up in the proper spirit.

The President then put the motion as amended, and it was unanimously carried.

The President asked the Society to name the members of the committee, and on motion of Dr. Tuley, Dr. J. B. Marvin, Dr. A. T. McCormack, and Dr. U. V. Williams were selected as the members of the committee to investigate the case of Dr. Davis in conjunction with the State Board of Health.

Dr. McCormack: I move that Dr. Cecil be appointed as a committee to draw up resolutions of thanks to the citizens of Georgetown and the local profession for the magnificent entertainment given by them last evening.

Dr. J. C. Mosely, of Henderson, read a paper on "Vaccination Prior to, During and After Smallpox," which was discussed by Drs. Smock, Lewis, Greenley, Yager, Cottell, Bate, McCormack, Ray, and the President.

Drs. McCormack and Cottell were appointed to escort the President-elect to the Chair.

Dr. Letcher was received with great applause, and was introduced by President Bailey thus: Gentlemen of the Kentucky State Medical Society—I have great pleasure in introducing to you my successor, Dr. James H. Letcher, of Henderson.

Dr. Letcher, in accepting the Presidency, said: It is useless for me to make an extended speech at this time. I can hardly tell you how much I appreciate the great compliment you have paid me. Nothing has ever occurred in the history of my life that has so touched me as this evidence of your kindness. While I have had little or no experience, except in my home Society, of conducting or presiding over a body like this, I shall promise to do the best in my power, as your presiding officer, in every sense of the word. But I must bespeak your co-operation in the work. I am very much obliged to you, indeed. (Applause.)

Dr. W. R. Blue, of Louisville, read a paper on "Gonorrhea Versus Syphilis."

Dr. Barton W. Stone, of Louisville, read a paper entitled "Opiates and Ethics."

Dr. A. J. Slaton, of Leitchfield, followed with a paper on "Some Advances in Minor Surgery."

Dr. T. B. Greenley, of Meadow Lawn, read a paper entitled "A Case of Paralysis Due to an Over-Dose of Camphor."

Dr. F. J. Yager, of Campbellsburg, read a paper entitled "Foreign Substances in the Windpipe, Threatening Tracheotomy."

The following papers were read by title:

1. "Relations of Defects of Vision to Occupations," by Dr. William B. Meany, of Louisville.
2. "Exophthalmic Goitre," by Dr. M. F. Coomes, of Louisville.
3. "Scarlet Fever," by Dr. Lyman Beecher Todd, of Lexington.
4. "The Throat in Scarlet Fever," by Dr. William Cheatham, of Louisville.
5. "Reminiscences of My Early Practice," by Dr. George J. Monroe, of Louisville.
6. "Some Obstetrical Experiences," by Dr. Charles W. Aitkin, of Flemingsburg.
7. "Cancer of the Uterus," by Dr. Louis Frank, of Louisville.
8. "The Pathology and Treatment of Lupus Erythematosus," by Dr. John Edwin Hays, of Louisville.
9. "Treatment of Broncho-Pneumonia and Results," by Dr. Hugh L. McLean, of Wilmore.
10. "The Closure of the Abdominal Incision," by Dr. Thomas S. Bullock, of Louisville.
11. "Osteomyelitis, With Cases," by Dr. W. F. Stirman, of Owensboro.
12. "Fractures of the Vault of the Skull," by Dr. J. Lively Johnson, of Louisville.
13. "The Importance of Nasal Breathing in Early Childhood," by Dr. William B. McClure," of Lexington.
14. "Some Nasal Reflexes, Local and General," by Dr. George E. Davis, of Lawrenceburg.
15. "Maternal Impressions," by Dr. D. G. Simmons, of Adairville.

Dr. John G. Cecil, of Louisville, offered the following resolutions:

At this, the closing hour of the Forty-fifth Annual Session of the Kentucky State Medical Society, it is fitting that we recognize in a formal manner the manifold courtesies that have been tendered us; therefore, be it

Resolved, first, That the most cordial thanks of this Society be given the kindly and hospitable people of Georgetown and Scott county for their generous and hearty welcome and entertainment while in their beautiful city.

Second, That we thank Dr. John A. Lewis and his Committee of Arrangements for all of their goodness to us, and the complete and thoughtful prep-

arations for our entertainment. We desire further to extend our heartfelt sympathy and condolence to Dr. Lewis and his family in their recent bereavement.

Third, We record our thanks to the Faculty and Trustees of Georgetown College for their generosity in allowing the use of their commodious and beautiful buildings for our sessions.

On motion the above resolutions were adopted unanimously by a rising vote.

Dr. Thomas Hunt Stucky, of Louisville: I have been requested by several members of the Society to speak a few words to Dr. John A. Lewis, and I would ask him to please come forward. I have been deputized by many of the members of the Society, as a token of their high regard for you personally, for your standing in this community, as a physician universally beloved, to present to you a simple token of their friendship, not for its monetary worth, but for its purity, and as being emblematic of the esteem in which you are held by the members. I recognize the fact that this is unusual, and it is with especial pleasure under the circumstances that I present to you a simple token of esteem. It is something that will remind you ever of this meeting. I present to you a silver sugar bowl, a silver cream pitcher, and a silver waiter. May you ever cherish them in the spirit in which they are given. (Applause.)

Dr. John A. Lewis: Mr. President, Gentlemen of the Kentucky State Medical Society—My cup is overflowing; my heart is overflowing. This to me was unknown until this moment, hence you must know that words cannot express what I want to say. To me, gentlemen, this is the sweetest occasion of my life. To-day is the banner-day in the history of my heart; it is the banner-day in the history of Georgetown; and I trust, gentlemen, that you may feel that it is the banner-day in the history of this Society. Gentlemen, I can only say that I thank you from the bottom of my grateful heart for this recognition of your kindness and for your kind feeling towards me and mine. (Applause.)

On motion of Dr. Humphrey a vote of thanks was extended to the retiring President, Dr. Bailey, for the able and impartial manner with which he had conducted the deliberations of the Society.

Dr. Bailey, in a few well-chosen words, appreciated the compliment paid him.

The President appointed the following committees:

Board of Censors—J. B. Marvin, Louisville; T. B. Greenley, Meadow Lawn; B. M. Taylor, Greensburg; A. D. Price, Harrodsburg; J. A. Humphrey, Henderson; David Barrow, Lexington.

Committee on Public Policy—A. M. Vance, Louisville; J. N. McCormack, Bowling Green.

Committee on Necrology—C. C. Lewis, Owensboro; Thomas Hunt Stucky, Louisville.

Committee on Topics for Discussion—L. S. McMurtry, Chairman, Louisville; W. W. Richmond, Clinton; L. L. Robertson, Middlesboro; R. D. Pratt, Shelbyville; Henry E. Tuley, Louisville.

Committee on Publication—I. N. Bloom, Louisville; James B. Bullitt, Louisville; Steele Bailey (ex-officio), Stanford.

There being no further business to come before the Convention, the Society, on motion, then adjourned, to meet in Louisville in May, 1901.

REPORT OF THE COMMITTEE ON NECROLOGY.

The Committee on Necrology made the following report as the mortuary record of the past year. The data concerning Dr. Beeler were gotten from Dr. W. W. Richmond, of Clinton; and of Dr. Cowan, from the Danville Advocate:

Dr. Ben Talbot Compton.

Dr. Ben Talbot Compton, of Corydon, Ky., son of Dr. George Lewis and Mary Talbot Compton, was born in Henderson county, Ky., October 14, 1869. When he was six years of age his mother died and left him to be reared by kind and loving sisters. He was educated in the common schools of Corydon, graduated in the College of Pharmacy in Louisville in 1889, and at once became a member of the Pharmaceutial Association of that place. Dr. Compton began the drug business in Corydon, and soon became the leading druggist in the town. He inherited a fondness for the profession of medicine and surgery, and in 1893 entered the Medical Department of the University of Louisville, where he graduated in 1896. He returned to his native place, Corydon, at once, entering upon the practice of his chosen vocation, for which he was, not only by training, but by his innate, gentle, sympathetic, yet firm manner, so peculiarly fitted. Here he remained during his busy professional career, and had already a large and lucrative practice at the time of his death.

He was a devoted member of the Ancient Order of United Workmen, one of its officers, and its Medical Examiner. He was also Examiner for the New York Life Insurance Company. Besides being a member of this Society, he was also a member of the Henderson County Medical Association, and the Morganfield District Medical Society. Dr. Compton was married November 16, 1892, to Nora, daughter of J. F. Powell, Esq., of Henderson county, which proved a most happy union. He was a true and loyal husband, fond of his home, kind, modest, gentle and loving. Though removed in the morning of life, he had lived long enough to show his real value and broad philanthropic character. He was taken sick of appendicitis, and removed to Letcher's Hospital, Henderson, where he died the 10th of last August. His remains were interred in Corydon.

Dr. George Beeler.

Dr. George Beeler, son of George and Hannah Stansbury Beeler, was born in Jefferson county, Ky., December 21, 1830, and died in Clinton, Ky., September 9, 1899. He remained on his father's farm until he was of age, when he entered Clinton Seminary, a noted institution of learing, then under the management of Mr. Simon Snyder. After completing his course of study there in 1853 he commenced the study of medicine with Dr. John S. Ray, of Clinton, and at the expiration of a year went to Louisville and continued his studies with Dr. Robert Breckinridge, and attended a session at the Kentucky School of Medicine. He then attended Transylvania College, Lexington, Ky., graduating with honor in its medical department in 1855. He returned to Clinton and practiced until the following fall, when he went to Philadelphia and entered Jefferson College, receiving a diploma from that institution in the spring of 1856. Then, locating permanently in Clinton, he continued to practice his profession there the remainder of his life. He became a noted physician and did a large practice.

Dr. Beeler was a member of the American Medical Association, the Kentucky State Medical Society, and the Southwestern Kentucky Medical Association, becoming President of both latter societies. He was also for several years a member of the State Board of Health. He was President of the Kentucky State Medical Society in 1891.

Dr. Beeler married Miss Viola Whayne, of Ballard county, Ky., November 18, 1856, and of this union there are living seven children. Mrs. Beeler died in July, 1894. Dr. Beeler was studious, thoughtful, and devoted to his profession. His devotion was not prompted by the desire for gain of this world's goods, but the alleviation of the sufferings of his people. As a neighbor and associate he was kind and considerate. In the social circle his universally affable and genial manner was like a ray of sunshine. In contact with other physicians he was always courteous and deferential, and to the young men of the brotherhood, in joint treatment of patients, did not assume the praise for success, but would accord to the young brother the credit. On all questions affecting the welfare of the community, whether social, moral or political, his counsel was sought, and the expressions of his opinions and judgment had an appreciable effect on the public mind. Dr. Beeler was a devoted member of the Christian church and of the Masonic order, and by his walk and dealings with his fellowmen was a thorough exemplification of the ability and possibility of men imitating the life and character and walking in the steps of the lowly Nazarine.

Dr. Harry J. Cowan.

Dr. Harry J. Cowan was born in Danville, Ky., December 21, 1861, and died in that place December 20, 1899. He was a son of Dr. George and Lettie B. Craig Cowan. His early training was received in Danville schools, from the chief of which (Centre College) he graduated with credit in 1881. After this he was for a time a student at Lehigh University. Having determined to adopt the profession of medicine and surgery, a fact which contributed in a large measure to his future success was that his professional studies were

commenced and pursued with great assiduity under the intelligent and careful direction of his father, Dr. George Cowan. He attended the University of Virginia one year, and College of Physicians and Surgeons, New York, two years, receiving his M. D. degree from the latter school.

He commenced the practice of his profession in Danville in partnership with his father in the fall of 1885, but afterwards attended several special courses in both medicine and surgery in New York. From the first until ended his career was an unbroken and merited professional and personal success of the highest and most enviable character. He was not merely a diligent and laborious student of his profession—he was an enthusiastic and absolutely tireless investigator in its every branch. He loved it not as a means of self advancement, but as the field of usefulness, to which he had turned with all the ardor of youth, and followed with a persistent zeal to which every advance in the science each new discovery gave an added impulse and a more brilliant flame. He was singularly unselfish, and the testimony of hundreds will bear witness that in his efforts to relieve human suffering and misery he never spared himself. Under an apparently cold exterior he concealed not only a heart that was most warm and generous, but a sensitiveness as delicate as that of a refined woman, so that the sight of the suffering he was compelled to witness in order to relieve it inflicted on him a mental and physical torture only exceeded by that of the objects of his care and anxious solicitude. Perhaps it was this sympathy with their ailments that made a friend of his every patient. In operating he exhibited a judgment as calm as it was intelligent, and possessed a wonderful nerve.

Dr. Cowan was a strict and jealous observer of the ethics of his profession. Singularly modest and unobtrusive, he performed the most delicate and skillful operations with the utmost success, and no one ever knew from him that he had ever heard of his cases. He never spoke of himself nor of his triumphs. Instinct, with energy, he was industry personified. Possessing fine, natural and inherited mental endowments, and rich in acquirement, he made use of all to their utmost limits. His life was eminently one of usefulness. He wrecked his health and sacrificed his own life for others. Scrupulously faithful to every obligation, truthful, brave, manly and honorable, his death is a public calamity. His memory will leave a sweet savor for his family, for his kindred and for his friends.

ROSTER.

Artis, H. G., Owensboro.
Adams, John F., Bagdad.
Adamson, H. K., Maysville.
Aitkin, Chas. W., Flemingsburg.
Albright, Gran. V., Barbourville.
Alcorn, Edward, Hustonville.
Allan, B. A., Louisville.
Anderson, Turner, Louisville.
Atkins, Henry S., Russell Cave.
Austin, Curtis, Bagdad.
Atkinson, J. L., Campbellsville.
Aud, C. Z., Cecilian.
Adamson, O. H., Sardis.
Adams, W. E., Stinnett.
Allen, Thos. P., Elmo.
Anderson, C. M., Booneville.
Abell, William I., Louisville.
Allen, Meverell Knox, Louisville.
Blincoe, A. G., Bardstown.
Bagby, D. M., Walton.
Bailey, William, Louisville.
Bailey, Steele, Stanford.
Barbour, Philip F., Louisville.
Barrow, David, Lexington.
Buntin, Hansom, Bramlette.
Beard, E. F., Faywood.
Beard, Frank M., Shelbyville.
Beard, W. F., Shelbyville.
Becket, J. R., Powersville.
Bethel, John T., Henderson.
Blaine, A. D., Dry Ridge.
Bloom, I. N., Louisville.
Blue, William R., Louisville.
Bodine, J. M., Louisville.
Bogle, John C., Danville.
Boggess, W. F., Louisville.
Boyd, Frank, Paducah.
Brice, J. C. S., Flemingsburg.
Brooks, John G., Paducah.
Brown, Hawkins, Hustonville.
Brown, Joseph T., Clintonville.
Brown, W. A., Parksville.
Bullock, T. S., Louisville.
Butler, Thomas L., Louisville.
Butt, A. L., Franklin.
Barker, James C., Hustonville.
Barnes, J. Barnes, South Carrollton.
Barkley, A. H., Lexington.
Board, Milton, Hardinsburg.
Bosley, J. G., Union City.
Barnhill, J. W., Pleasant Ridge.
Bullitt, James B., Louisville.
Bernheim, Albert, Paducah.
Bate, R. Alexander, Louisville.
Bryan, F. F., Georgetown.
Brown, Isaac H., Winchester.
Browning, L. Y., Mayslick.
Baker, Thomas H., Louisville.
Brandeis, Florence, Louisville.
Botts, Samuel T., Etoile.
Boyd, R. L., Allensville.
Brown, J. Sam., Ghent.
Botts, J. W., Owenton.
Barnett, Frank A., Lebanon Junction.
Brown, James S., Warsaw.
Birchett, R. W., Owenton.
Bates, S. W., Shepherdsville.
Bannister, W. E., Lexington.
Bergmann, Louise S., Lexington.
Bindewald, William Andrew, Louisville.
Caldwell, R. C., Shelbyville.
Carpenter, J. G., Stanford.
Carrick, J. C., Lexington.
Cartledge, A. M., Louisville.
Cecil, John G., Louisville.
Cheatham, William, Louisville.
Chenoweth, James S., Louisville.
Clarke, F. H., Lexington.
Coffman, W. H., Georgetown.
Coleman, B. L., Lexington.
Coleman, J. R., Murray.
Contri, L. G., Carmel.
Coombs, Samuel W., Bowling Green.
Coomes, Martin F., Louisville.
Cottell, H. A., Louisville.
Crowley, James W., Newport.
Carr, W. H., Claysville.
Conway, W. H., Sunset.
Cleaver, Thos. F., Lebanon.
Cooper, J. B. F., Springfield.
Creel, M. P., Central City.
Crosby, J. A., Shelbyville.
Carlton, R. E., Bethany.
Croft, Geo. W., Louisville.
Caldwell, A. G., Ballard.
Coyle, D. A., Lexington.
Converse, T. Edwards, Louisville.
Cherry, E. A., Morgantown.
Cassity, John C., Eminence.
Cain, Achilles W., Somerset.
Clark, J. Johnson, Marion.
Chambers, John M., Independence.
Cook, L. B., Stanford.
Connell, J. W., New Liberty.
Clifford, Charles M., Jacksonville.
Cox, Braxton D., jr., Jackson.
Dabney, S. G., Louisville.
Dalton, J. M., Harrodsburg.
Daugherty, Thos. H., Sadieville.
Davis, George E., Lawrenceburg.
Demaree, Owen, Frankfort.
Dixon, Archibald, Henderson.
Dixon, Archibald, jr., Henderson.
Doherty, W. B., Louisville.
Duerson, W. B., Mt. Sterling.
Dugan, W. C., Louisville.

Dunlap, Fayette, Danville.
Dunn, M. C., Zion.
Davis, H. C., Harrodsburg.
Demaree, Joseph S., Mackville.
Dunn, J. T., Louisville.
Durrett, L. P., Prestoria.
Daugherty, W. T., Hilltop.
Dailey, Wilson G., Jackson.
Dunlap, Thomas G., Louisville.
Drake, John W., Louisville.
Dickenson, J. S., Trenton.
Duff, John F. H., Louisville.
Davis, Maynard H., Mayslick.
Evans, John B., Riley.
Evans, Thomas C., Louisville.
Eckman, B. F., Covington.
Eads, D. D., Paris.
Earle, Ben. F., Charleston.
Ellis, Percy V., Ghent.
Ely, James R., Frankfort.
Falconer, R. C, Lexington.
Fallis, Robert G., Louisville.
Ferguson, R. V., Hadenville.
Frank, Louis, Louisville.
Freeman, J. A., Beard.
Frey, R. Wesley, Trenton.
Feland, John M., Reynoldsville.
Forsythe, M. L., Harrodsburg.
Fithian, Frank, Paris.
Fitch, J. W., Russell.
Finley, Thomas R., St. Charles.
Foster, William E., Owenton.
Ferguson, John P., Louisville.
Farmer, Charles, Louisville.
Floyd, Benjamin L. W., Cairo.
Gibson, H. R., Richmond.
Gibson, William M., Richmond.
Garner, W. F., Humphrey.
Garr, C. R., Flemingsburg.
Gilbert, Richard B., Louisville.
Grant, W. E., Louisville.
Grant, H. H., Louisville.
Greenley, T. B., Meadow Lawn.
Griffith, P. F., Henderson.
Groves, C. I., Louisville.
Guthrie, W. A., Franklin.
Graham, C. B, Henderson.
Gossett, Walker B., Louisville.
Grissom, William R., Columbia.
Glass, A. M., Booneville.
Gilbert, Jonas S., Van Buren.
Givens, Lamme S., Cynthiana.
Garr, B. A., Louisville.
Gaddie, David M., Hodgenville.
Gilmer, John P., Louisville.
Goslee, Levin E., Lakeland.
Goldsborough, C. N., LaGrange.
Gower, Charles W., Trenton.
Godshaw, C. C., Louisville.
Hanna, W. M., Henderson.
Harwood, Charles P., Shelbyville.
Hays, John Edwin, Louisville.
Henderson, Peyton R., Louisville.
Herndon, Benj. F., Barbourville.
Herring, Henry C., Lancaster.
Hertszch, Della, Louisville.
Heuser, Henry, Louisville.
Hobson, Willis W., Harrod's Creek.
Hodge, J. A., Henderson.
Holloway, J. W., Keene.
Holloway, U. G., Troy.
Holmes, B. L., Carrollton.
Hopson, Joseph, St. Matthews.
Huddleston, J. W., Murphysville.
Hume, E. E., Frankfort.
Humphrey, J. A., Henderson.
Heavrin, J. P., Owensboro.
Harris, John W., Union City.
Hoover, J. C., Owensboro.
Harris, S. J., Philpot.
Hamilton, J. D., Louisville.
Hibbitt, C. W., Louisville.
Haynes, W. L., Calhoun.
Heflin, W. R., Lakeland.
Hood, W. H., Orangeburg.
Huzer, W. J., New Haven.
Haden, John V., Salem.
Halley, Samuel W., Payne's Depot.
Handley, V. E., Sturgis.
Honeycutt, James B., Temple Hill.
Howell, J. D., Vine Grove.
Hill, J. W., Bardstown.
Ingram, Julia, Louisville.
Irwin, J. W., Louisville.
Insco, Mark, Brattan.
Ishmael, R. B. L., Winchester.
Ishmael, J. W., Winchester.
Jackson, A. W., Earlington.
Jamison, W. E., Eminence.
Jenkins, J. O., Newport.
Johnson, Calvin R., Eminence.
Johnson, J. E., Lebanon Junction.
Johnson, Campbell H., Henderson.
Jones, A. N., Walton.
Jones, R. M., Louisville.
Johnson, James L., Louisville.
Kelly, Edward, Lebanon.
Kash, Oliver S., Moorefield.
Kavanaugh, C. W., Lawrenceburg.
Keen, W. C. Burksville.
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